DCSTOOLS.COM

Tools for Radio

XStudio 3

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XStudio 3

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Welcome to XStudio!

Part I

XStudio is an easy-to-use, powerful system featuring multi-channel, multi-stream playback, multiple user-selected operating modes, audio switcher control and user-defined actions for automatic task execution. Tasks can be initiated from the broadcast log, in response to an audio switcher relay or from the XStudio scheduled events table, providing maximum flexibility in automation control.

XStudio can be utilized in a number of ways:

- A **stand-alone audio playback system** supporting live, local automation and basic satellite modes of operation. Multiple XStudio work stations in the same facility can share centrally stored audio files.
- A **portable playback system** - for instance, on a laptop computer.
- A **supplemental playback system** for secondary program services in HD radio.
- An **emergency playback system** for use with a DCS™ or Maestro™ in the event of a system failure.
- Remotely control a DCS or Maestro system (in combination with rcServer).

If you're using an older DCS™ or Maestro™ system, XStudio is a great migration path! XStudio utilizes the same logs (schedules) and audio files (.DAF files) as DCS and Maestro systems.

A Flexible, Powerful Audio Delivery System!

Utilizing a standard PC or laptop PC equipped with a standard Windows-compliant audio card, XStudio can follow the log, playing audio in sequence, including audio overlap. A single audio output device is used, with as many as three (3) streams of audio, mixed 1-to-1, playing simultaneously. This ensures smooth audio overlap. XStudio also supports multi-channel audio cards and can use as many as four (4) discreet outputs, each supporting three (3) streams of audio.

XStudio can be used to execute live, local automation and satellite programming formats, including transitioning among these modes of operation for mixed formats. See the topic on programming XStudio for an overview of concepts and specific examples.

XStudio works well with popular music scheduling and radio traffic systems. You can create logs (program schedules) using your traffic system or in combination with your music scheduling system, depending on your format and needs. You can also create and edit logs with XStudio's built-in log editor or by using one of our log editing utilities.

Reconciling music and commercial content is easy, as XStudio automatically documents air play of both scheduled and unscheduled elements.

Audio files can be located on the local hard drive in a single folder or can be played directly from a network location. If XStudio is integrated with an existing DCS or Maestro system, the source audio files would typically be played directly from the audio folder of an ACP server.

In addition to being a complete standalone system, XStudio is a cost-efficient solution for DCS or Maestro users in need of either a portable or emergency audio playback system.

XStudio is supplied with XEngine, an audio playback server application that allows XStudio to be operated independently as a stand-alone system. XStudio can also be used as a control system for a host DCS or Maestro audio unit when combined with rcServer. In this case, the host DCS or Maestro becomes the "audio engine".

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1.1 Key Features

XStudio offers a number of powerful features and delivers a reliable, simple-to-use audio delivery system experience.

- Execute a program log in sequence, including audio overlap, using any of **4 modes of operation**, including Live, Local Automation, Satellite and Emergency. XStudio's behavior, including how it reacts to log directives, audio switcher input relays, etc., changes with each mode, allowing you to choose the mode of operation that best suits your programming needs. Modes can be manually changed on-the-fly or automatically with a log directive, user-defined action or as a log-independent scheduled event.
- Up to **4 channel outputs** with up to three (3) audio files (streams) playing concurrently, mixed 1-to-1, on each output deck. Play up to 12 streams of audio simultaneously!
- **Audio overlap**, using the .DAF file AUX mark, for up to 3 elements per deck (triple-overlap).
- PCM (linear) and MPEG 2 files supported standard, apt-X™ files supported with optional decoder.
- Sample rates of 16, 32, 44.1 and 48 KHz are supported.
- **Hot buttons** - just click and play! Hot Buttons can also be used to initiate user-defined actions, including setting operating mode, updating an audio switcher, etc. Each personality can create unique sets of 300 buttons to completely personalize hot buttons.
- **Audio switcher control** and input relay detection for most Broadcast Tools switchers, including the SS8.2, ACS8.2, and SS16.4 models.
- On-screen switcher status display with on-demand channel on/off control.

- **External device control** via RS-232 interface. Send user-defined control data to an external device.
- **Automated Tasks**, including switcher updates, start/stop audio playback, set the clock, set operating mode, relay outputs, precision timers and more. Tasks are grouped together as action lists and can be nested for maximum flexibility. Each task is validated for mode of operation, day and time of day for conditional execution, including time ranges and hour parts.
- Use DCS or Maestro logs that you may already have prepared for use on-air, or create your own. XStudio supports virtually all DCS and Maestro log directives and adds some of its own, including Hard Sync.
- **User-configurable log display**, including song title and artist information. You control what log elements are displayed, their size, location, element color and font size!
- Use existing DCS or Maestro audio files (*.DAF) or create your own, using dcsTools' XChange and XTractor software. XStudio supports multi-cut carts, observing cut rotation and date sensitivity, if enabled.
- User options for **Auto-Segue**, **Play through Directives** and **Wrap the Log** that can be changed on-the-fly.
- User-selectable option to **enforce cart dates**.
- A DCS/Maestro compatible **audit data** file is generated, documenting system performance. Standard DCS and Maestro tools for reviewing audit data can be used, including our own ezAudit and ezSuite.
- **Remote start** functionality via a PC game port.
- **Drag and drop** operation for moving audio items around on the log, including scrolling the log view while dragging.
- **Drag and drop** audio items (carts) from the station inventory to the log.
- **Copy and Paste** audio items to and from the log.
- **Search the Log** by cart number or description.
- Hourly log content totals, calculated from the inventory (if used), along with directive segment time totals. Directive segment totals, too.
- **Log Validation**. Validation reports can be printed or saved to file.
- **Print logs**, including print preview and selective printing of pages.
- **Inventory printing**, including print preview and user-defined filtered inventory lists.
- Integrated **context-sensitive help** in all editing dialogs.

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1.2 What's New in XStudio

Here are the latest changes, enhancements and corrections to XStudio by version number and date. For information on less-recent changes and enhancements, see the Revision History topic.

Version 3.4.0.450 - 02/05/2015

1. **Enhancement**. A new start-up option, Start Audio Engine, has been added. If enabled, XStudio will check to see if XEngine is running at start-up and if not, offer to start XEngine.
2. **Change**. XStudio event logging has been changed somewhat to be more consistent in how event entries are constructed and written to the daily event log. The change should improve readability of the event log.
3. **Fix**. When in Live mode, XStudio would transition to the next-day log when Play Through Directives was disabled and there were directives on the log beyond the last playable log element. Now, XStudio will play the last element and stop. If Play Through Directives is enabled, XStudio will behave as before, transitioning to the next-day log.
4. **Fix**. If a user unintentionally caused XStudio to transition to the next-day log and then manually opened the correct log using the standard XStudio open log dialog, XStudio did not correctly reset the current-day and next-day log dates.

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System Requirements & Installation

Part II

In order to use XStudio successfully, certain hardware and Windows operating system requirements must be met. You must also install the XStudio software on the PC, using an installation program.

This section documents the system requirements for XStudio and covers the process of installing, updating and removing the XStudio software.

2.1 System Requirements

Here are the base hardware and operating system requirements to run XStudio:

- **Operating System**: Windows 2000 Pro (SP4), Windows XP Pro, Vista, Windows 7 or Windows 8.

Vista is ***not recommended*** as the host operating system for XStudio. Internal testing suggests performance under Vista is degraded compared to the other supported operating systems.

- **CPU Speed**: 1 GHz or greater
- **RAM Memory**: 256 MB RAM or greater for Windows 2000 & XP Pro, 512MB (1GB recommended) for Vista, Windows 7 & Windows 8.
- **VGA Display**: A minimum of 800 x 600 resolution, 1024 x 768 or greater is highly recommended as this resolution is necessary to display all four playback decks properly. A second monitor is desirable if making extensive use of Cart Wall.
- **Audio Card**: An audio card supported by the operating system - one playback channel as a minimum. Two (2) or three (3) playback channels are recommended with a maximum of 4 physical output channels supported.

If only a single audio device is present in the system, that device will also be the one used by Windows to play system sounds. It is highly recommended that all system sounds be disabled if the PC has just one audio device. This will prevent unwanted sounds during audio playback.

- **Game Port:** For use as the interface for remote starts (optional).
- **Default Print Device**: You must have a default print device assigned. XStudio can produce printed reports and lists and expects to have an available default printer. If you do not have a printer, you can use one of the available non-printing devices like the Microsoft XPS Document Writer.
- **Disk Space**: At least 40 MB free disk space for XStudio, audio engine and documentation files. XStudio Database and Inventory Manager Database files may consume 100MB or more, depending on the size of the audio inventory, music library size and number of Tasks, Actions and Scheduled Events. Additionally, you must have sufficient available disk space to accommodate carts (audio files) that are stored locally.
- **A 100 mbs or better LAN card** (NIC): The OS' TCP/IP client must be installed on the PC. XStudio uses TCP/IP to communicate with the host audio server, whether it is the supplied XEngine or a host DCS or Maestro connecting via rcServer.

To use XStudio, you need access to source audio files (.DAF files), either those used with a DCS or Maestro system or created to meet the .DAF file specification, and optionally, the log files. This means you need to be connected to the network (LAN) in which the DCS and/or Maestro units are running, if integrating XStudio with an existing delivery system or if audio is stored on a file server. Be sure that your system administrator has provided you the necessary access rights to these file locations. For

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logs, you will need both read and write access to save log files. For audio files, you need only have read rights unless you wish to edit cart header information, which requires read and write privileges.

2.2 Installing XStudio

The XStudio installation program provides step-by-step instructions on every screen displayed during the installation. Follow the instructions on each screen to install XStudio.

The standard XStudio installation ***does not install*** the support files needed for playing back apt-X™ audio files, as apt-X decoding may not be needed. To install the apt-X decoder files, select the **Standard + apt-X Installation** or the **Custom Installation** option and ensure the ***Install apt-X Support*** component is selected (checked).

Before you install

1. Close all other programs, including any anti-virus programs. Anti-virus programs in particular may impede or completely disable your ability to install programs on your computer.
2. If you are installing on Windows 2000, Windows XP, Vista, Windows 7 or Windows 8, log on to your computer with administrator privileges.

You must have administrator privileges to perform an installation or a software update when running on Windows 2000 Pro, XP, Vista, Windows 7 or Windows 8.

Installing XStudio

XStudio is distributed as a down-loadable installation program. The latest version of the software is always available on our web site on the XStudio product home page and the general downloads page.

1. After you have downloaded the installation program to your computer, locate the setup program, **XStudio3Setup.exe**, in the folder to which you downloaded the file. [**Double-Click**] on the setup program to begin installation.
2. Follow the instructions on each screen to install the software.

Updating XStudio

1. If you have downloaded or otherwise received a revision for XStudio, the process for updating the software is virtually identical to the initial installation. However, the installation dialogs may be a bit different. When updating, you are not typically given an opportunity to select the target folder for installation, as that choice has already been made in a previous installation.
2. You may be prompted that an old version of XStudio has been found and that it must be uninstalled (removed) before continuing with the update. If you see this prompt when updating XStudio, you should answer "Yes" to remove the old version, and if prompted to confirm the removal of the old version, again answer "Yes".
3. On occasion, updating XStudio may require some additional tasks be performed during the update. Such tasks might include validating and/or updating your registration and making adjustments to your preferences settings. If these tasks are needed, you will be prompted

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for any input required and notified if the update task could not be completed successfully.

4. When updating XStudio, the installation program will typically offer the option of backing up the existing program and support files before performing the actual update.

Special Note on Updating XStudio: When updating the software, be aware that if you deselect a set of files or an option for shortcuts that were a part of the original installation, the files and/or shortcuts ***are not removed***. However, selecting a previously-unselected option ***does*** add the files and/or shortcuts.

If you need to remove a previously-installed option, use the standard uninstall procedure, followed by a new installation. So long as the new installation is placed in the same folder as the original, no data or preference settings are lost.

To Uninstall XStudio

To remove XStudio from your PC, select the Control Panel applet Add/Remove Programs. Select XStudio and click on the [**Remove**] or [**Uninstall**] button. Follow the prompts to uninstall the software.

When uninstalling XStudio, ***only files originally installed are removed***. Event log files, your preferences files and any backup files are not removed. See the List of Files topic for more information on files that are installed or created by XStudio.

Notes for Novell Netware Users

1. XStudio must not be installed on a Novell Netware server volume. Novell Netware is not compatible with the XStudio database engine and database errors will occur if you are using the default database configuration and attempting to run XStudio from a Netware volume.
2. Logs, audit files and audio files can be located on all versions of a Novell Netware server. The logged-on user must have the appropriate user rights for the volumes and folders used.
3. The latest Microsoft operating systems, starting with Vista, ***do not include a Netware client***. This means that you cannot directly access a Novell Netware server with a PC running these operating systems. A possible workaround is to implement usage of Microsoft's Gateway Services for Netware, available on Windows 2000 Server. However, using Gateway Services for Netware may negatively affect performance.

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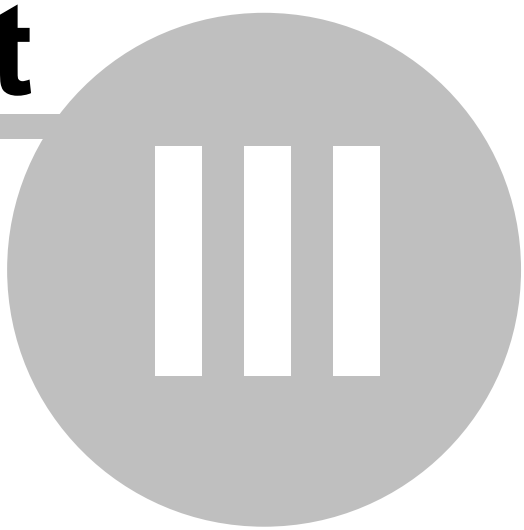
Configuring XStudio

Part



In order to use XStudio, the application needs to know about the station(s) logs which you will be using for playback, the location of the audio files to be played, and which available audio channel (audio output) will be associated with each displayed playback deck, among other things. In the preferences area, you define stations, their call letters and location of the logs. The path to the audio files is defined, as are the audio channel-to-deck mappings. You can also define cart categories (which contain cart masks) that can be used to "filter" the audio inventory information and apply specific color schemes for each type of audio on the log display.

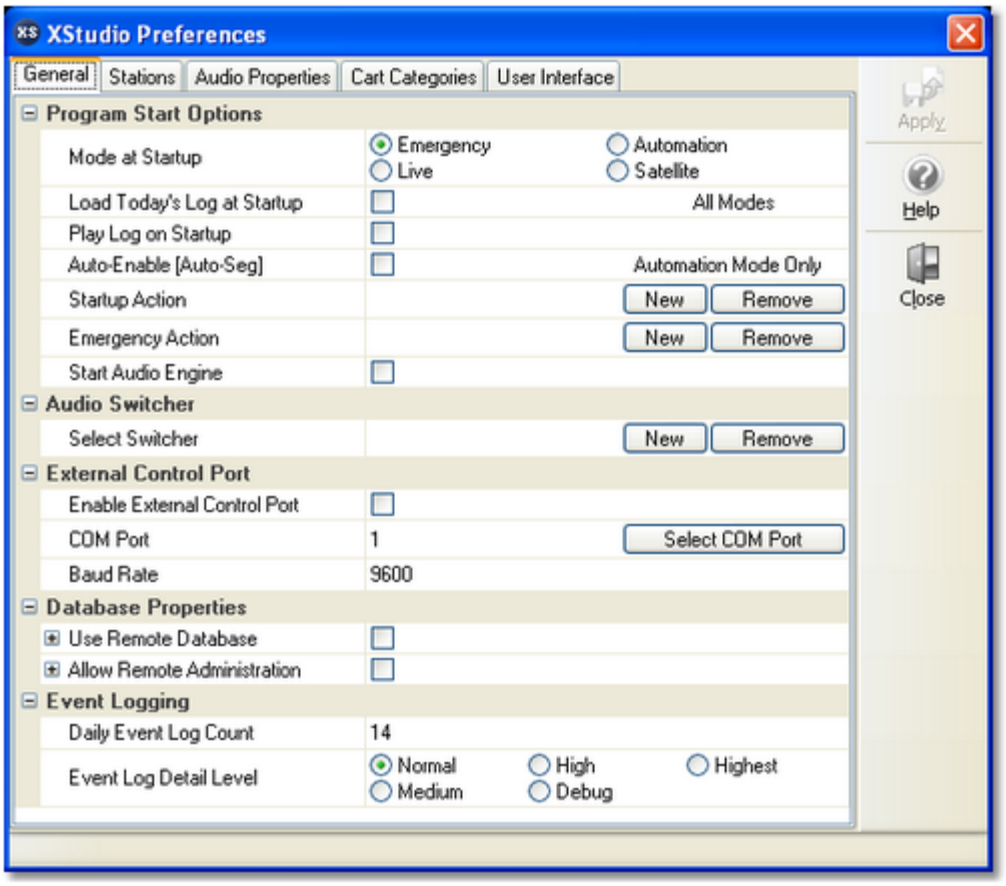
There are a number of preference settings that enable or disable certain features within XStudio and other settings that affect the behavior of XStudio at run-time.

When changes are made and "applied" (saved), XStudio automatically updates its behavior to match the new settings, with just a few exceptions - notably, changes to the database location and audio server TCP/IP port settings.

This section provides details on each of the available preference settings, organized as they are displayed.

3.1 General Settings

The **General** tab contains several groups of properties that control XStudio startup behavior, identify external devices that may be connected, adjust certain automation database settings and configure the application event logging. All property settings on this page have default settings, so you need change only those settings that are applicable to your use of XStudio and can leave the balance of the properties as-is.



General properties

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Program Start Options

This group of properties controls the behavior of XStudio when starting up.

Property	***Description***
Mode at Startup	When XStudio starts, the mode selected here will be the initial operating mode of the system. You might view this setting as the "default operating mode". For more information on XStudio operating modes, refer to the topic on Operating Modes. The default value for this property is **Emergency** mode. This setting could be superseded during the startup process if you have a Startup Action assigned and the Action includes one or more conditional Set Mode tasks based on the time of day and day of week, for instance.
Load Today's Log at Startup	This property controls whether or not XStudio attempts to load a log at startup. If checked, XStudio will load the current day's log for the defined "Default Station" when starting. Additionally, if a log for today is not found, a check will be made for the existence of an Emergency Log for the station. If the emergency log exists, it will be loaded.
Play Log on Startup	If checked, when XStudio completes its startup initialization the audio element on the log closest to current time will be played automatically with no user intervention required. ***This setting will be ignored if the operating mode at startup is*** **Satellite**. If audio is already playing on the primary playback channel (channel 1) when XStudio is ready to begin playing, playback of the selected log item will occur when the currently playing item reaches EOM (Aux Mark).
Auto-Enable [**Auto-Seg**]	***Applicable in Automation mode only***. If checked, when a user starts playing audio from the log on channel 1, the [**Auto**] button (auto-segue button) will automatically be enabled if the user had temporarily disabled auto-segue for some reason. If the mode of operation is anything other than Automation, this setting is ignored.
Startup Action	If an Action is selected, XStudio will execute the selected Action when starting up. The Action chosen here is executed after all program initialization is complete and a log (if applicable) has been loaded, but ***before*** attempting to play audio from the log (if enabled) and prior to checking for any scheduled events. The Startup Action is placed in the startup sequence so that if the executed Action changes the mode of operation, decisions about playing the log immediately on startup and whether or not a scheduled event gets executed are influenced by the results of the Startup Action. Use the adjacent [**New**] button to create a new Action and the [**Remove**] button to clear the Startup Action field. See the Actions topic for more information on creating an Action.

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Property	***Description***
Emergency Action	If XStudio is used as an emergency backup system for a DCS or Maestro, or you want to implement a special way of handling emergencies when XStudio is the primary on-air delivery system, you can assign an Action that will be performed in an emergency. If an Action is selected for this field, that Action will be performed when the "Emergency Relay" is triggered. This special relay exists so that users who do not have an audio switcher (and therefore no input relays) have a way to externally signal XStudio that an emergency has occurred. The Emergency Relay is a part of the remote start interface that uses a game port and as a default, Button 4 is used as the Emergency Relay - see the topic Remote Start Interface for more information, as you have the option to disable the Emergency Relay by assigning it to playback Deck 4. Use the adjacent [**New**] button to create a new Action and the [**Remove**] button to clear the Emergency Action field. See the Actions topic for more information on creating an Action.
Start Audio Engine	If checked, XStudio will check to see if XEngine is running at start-up and if not, will prompt the user, asking if XEngine should be started. If the user answers "Yes", XStudio will attempt to start XEngine. If XStudio is starting unattended and this option is enabled, it will automatically attempt to start XEngine if there is no user response to the prompt. This option should be enabled only if you are using XEngine as the host audio engine. If XStudio is running in multi-instance mode, this setting is ignored.

Audio Switcher Properties

If you will be using an audio switcher with XStudio, you select the device in this section. At present, XStudio supports just one switcher at a time and does not support "ganging" audio switchers together, a feature is available on some Broadcast Tools audio switchers.

Property	***Description***
Select Switcher	Select the audio switcher to be used from the drop-down list. Use the adjacent [**New**] button to create a new switcher resource and the [**Remove**] button to clear the field. See the External Resources topic for more information on creating a switcher resource.

If you change the selected audio switcher and apply (save) the settings, XStudio will update when the Preferences dialog is closed. This includes changing to the COM port that is used by the new switcher and retrieving the

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input relay map. If you change switchers, be sure the newly-selected device is connected to the PC on the correct COM port.

External Control Port Properties

If you need to control an external device with serial data, you can optionally enable this feature set. This set of properties enables external control usage and allows you to assign a COM port and baud rate to be used. The External Control Port is used in conjunction with the Send Control Command task.

Property	Description
Enable External Control Port	If checked, processing of Send Control Command tasks is enabled.
COM Port	Select the COM port to be used for Send Control Command tasks. Valid port numbers are 1-8. Use the [**Select COM Port**] button to select the COM port from a list of ports available on the host PC. The default port number is 1. **Note**: If you are also using an audio switcher, the external control COM port must be a different port number.
Baud Rate	Select the baud rate to be used from the drop-down list of available speeds. The default baud rate is 9600.

COM port settings other than the port number and baud rate are not user-adjustable. Standard settings are used for parity, data bits and stop bits. These settings are:

Parity: None
Data Bits: 8
Stop Bits: 1

Database Properties

By default, XStudio automatically creates and maintains a set of tables that contain automation data - resources, tasks, actions, and scheduled events - along with song titles and artists and log archive information. Under normal circumstances, no adjustments to the default database properties are needed to operate XStudio. See the Database Reference for more information.

However, XStudio offers some flexibilities that you may find useful, including the ability to allow remote access to the XStudio local database or to access a centralized database which may be physically located on another PC.

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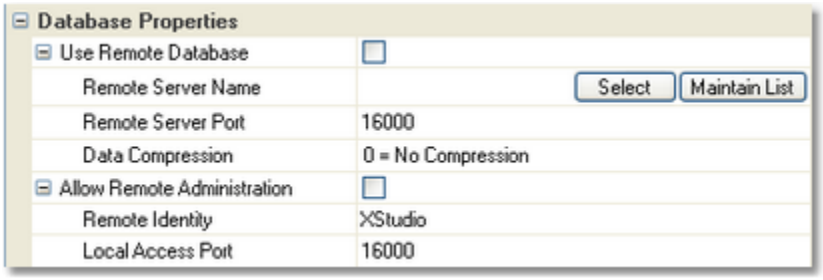

Database properties (expanded view)

There are two sets of properties in the database group, one for implementing connection to a remote database server and one for enabling access to the default local database controlled by XStudio. By nature, these two sets of properties are mutually exclusive - if you are using a remote database, local administration properties are ignored and vice versa.

If you make changes to the database properties, the changes will not take effect until XStudio is restarted.

Items with a check mark in the ***REQ*** column require user entry, while unchecked items have default values which can optionally be changed.

Property	***REQ***	***Description***
Use Remote Database		If checked, XStudio will use a remote database instead of the default local database. In order to use a remote database running as a stand-alone database server, you must have a database server application installed, configured and running. As a default, this option is disabled.
		Do not check this item unless you are sure you have a remote database server installed and operating properly! If selected, XStudio will not use the default local database and will try to find a remote database.
└ Remote Server Name	✓	If you are using a remote database server, the correct name and address of the server are entered in this field. Use the adjacent [**Select**] and [**Maintain List**] buttons to select a defined database server or create a list of available servers respectively. See the topic on Database Server List Maintenance for more information.
└ Remote Server Port	✓	If you are using a remote database server, the port number must match the one the server is using. The default value is 16000.
└ Data Compression		As a default, when using a remote database server, data is transferred between the database server and XStudio uncompressed. If your LAN performance is slow, you can implement varying degrees of data compression, which causes the database server to compress the data before

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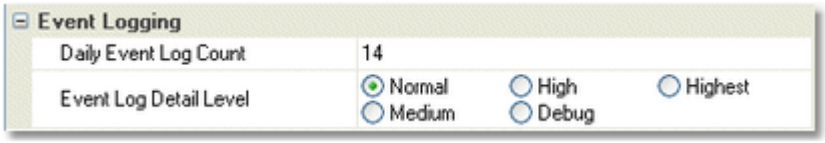
Property	REQ	Description
		sending it to XStudio, thus reducing the required LAN bandwidth. However, this is at some cost as the database server must go through the extra step of compressing before sending the information and XStudio must decompress the data when it is received. ***If you wish to implement data compression, select one of the compression options from the drop-down list that appears when editing the property***. See the topic on Implementing Data Compression for further information on data compression settings.
Allow Remote Administration		If you wish to allow remote administration of the local XStudio database with the XStudio Admin application, check this item to enable the feature. The default for this setting is that remote administration is disabled (unchecked).
⌙ Remote Identity	✓	If remote administration of the automation database is enabled, the identity entered here is how this instance of XStudio will be identified to remote users. The default value is "XStudio".
⌙ Local Access Port	✓	The port number to use when remote administration is allowed. The default value is 16000. This value must be different from the XStudio Inventory Manager local access port to avoid conflicts.

The necessary stand-alone database server software for implementing a centralized database is not included in the XStudio installation package. If you wish to use a centralized database, contact your vendor for information on obtaining the database server software, along with its requirements for use.

Event Logging Properties

As XStudio runs, information relating to its performance and problems encountered is written to a group of application event logs. The event logs are text files maintained automatically by XStudio in the form of event logs for each day, with a default of 14 days (14 daily files) being available for review at all times. Event logs are generally used in troubleshooting problems or determining why XStudio behaved in a certain way. Review the topic on using application event logs for additional information.

This group of properties provides the means to control the number of days XStudio will retain daily event log files, and to adjust the amount of information that is stored to the file as XStudio runs - the so-called "detail level".



Event Log properties (expanded view)

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Property	***Description***
Daily Event Log Count	The default is to keep daily event logs around for 14 days. Use the spin-edit control that appears when you begin editing the property to increase or decrease the number of days you wish to keep daily event logs. The minimum number of days is 7, the maximum number is 62.
Event Log Detail Level	The default detail level is "**Normal**". As you change the detail level to Medium, High, Debug, and Highest, XStudio logs more and more information to the daily event log. The higher the detail level, the larger the daily event log file size will be. For troubleshooting, you should set the detail level to "**Debug**" as a minimum.

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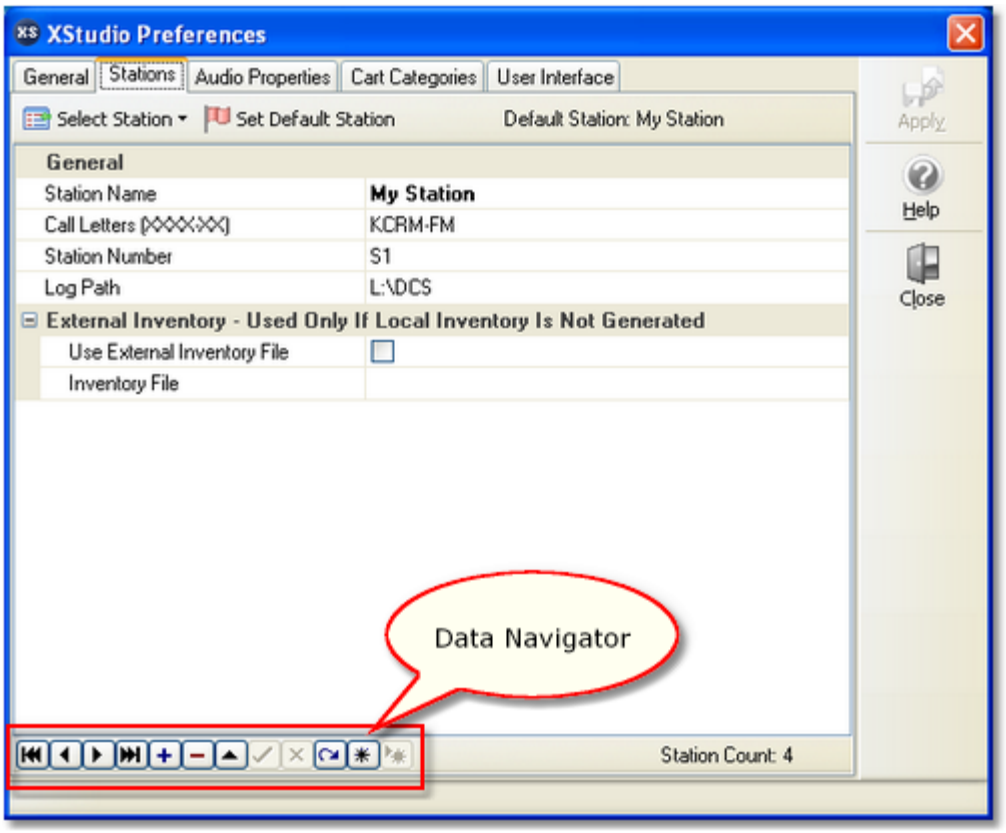
3.2 Setting up Stations

The **Stations** tab is used to create and maintain a list of stations for which XStudio will be used. For each defined station, you will provide a name for identification purposes, the station's call letters, station number (log identification), and the path where the station's logs are located. Optionally, you can designate an external inventory file (CMINV??.DAT) if you will be using audio inventory information not generated by XStudio - for instance, a DCS or Maestro-generated inventory data file.



Stations properties

Adding a New Station

To add a station, click on the insert button on the stations data navigator, displayed as a "**+**" (plus symbol) or touch the [**Insert**] key. A new record will be created and displayed, similar to the example shown.

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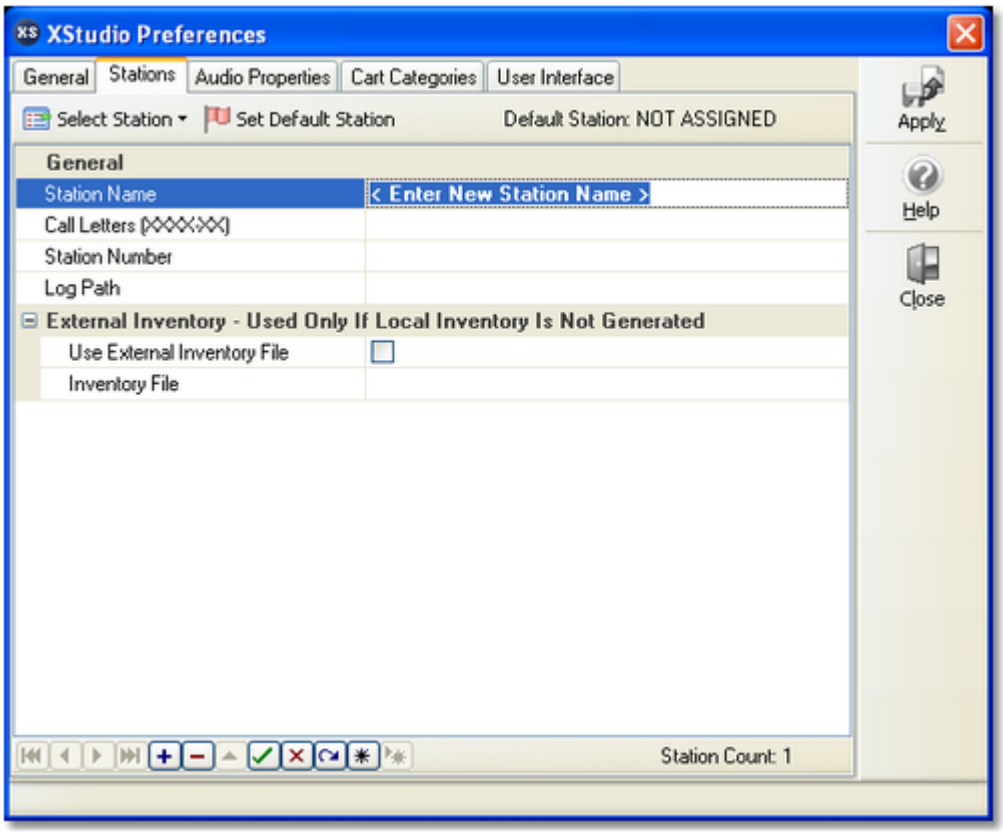

Creating a new station

There are several fields of information that need to be filled in for a station, as detailed in the station properties list. Items with a check mark in the **REQ** column require user entry, while unchecked items have default values which can optionally be changed.

Property	***REQ***	***Description***
Station Name	✓	Identifies the station you are configuring and is used within XStudio only. The name can be anything you wish, up to 30 characters in length. The station name should be unique for ease in identifying which station you are working with, but a unique name is not required. The name you provide for the station is used in various displays and dialogs, including the main display title bar and the station list presented when manually opening a log.
Call Letters	✓	The call letters of the station. The call letters are used as a secondary identification for the station and are placed in the log file if you edit a log with XStudio and subsequently save the log.
Station Number	✓	The assigned station number for this station. The station number is typically assigned within a traffic system and consists of a one or two character ID, like "S1", "S2", etc. If you enter a single character in this field, it will automatically be converted to two characters by prepending the letter "S" to your entered information.

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Property	***REQ***	***Description***
Log Path	✓	The drive and folder where logs for this station are stored. UNC paths should be used if the log location is a server or PC other than the machine running XStudio. If you are running XStudio on Windows 7, avoid using mapped network drives.

If you are using a **UNC path** or **mapped network drive**, ensure that you are logged in to the host server machine or you will get an error message that no log files can be found when you select a station in the Open Log dialog. XStudio will also be unable to automatically load a log at startup.

Optional Inventory Info - Use only if you are not generating inventory information directly with XStudio

Use External Inventory File	Check this item if you wish to use an inventory data file not generated by XStudio. This option would be typically be enabled only if you are using XStudio to control a DCS or Maestro machine.

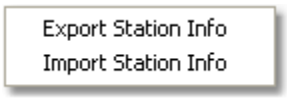
This setting, along with the specified inventory file name, will be overridden by XStudio if you have enabled the Generate and Use Local Inventory option on the Audio Properties page of Preferences.

Inventory File	If you have checked the "***Use Inventory***" item, then you must select a valid inventory for this station. If the "***Use Inventory***" item is not checked, then you do not need an entry for this field. You can use the ellipse button adjacent to the field to browse for the inventory file you wish to use.

When you have completed the station definition, click on the "**post edit**" button on the stations data navigator, displayed as a check mark. Your entries will be validated and a message displayed if you have entered invalid information for a station field.

Importing and Exporting Station information

You may wish to save your station information for use with another XStudio system or for archival purposes. XStudio provides the means to export and import station information via the Stations context menu. [**Right-Click**] anywhere on the Stations page to invoke the context menu.



Stations Context Menu

To export information, select the **Export Station Info** menu item. You'll be prompted to select a file name for exported information.

To import information, select the **Import Station Info** menu item. You'll be prompted to select the file

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containing the station information. If you already have some stations defined in XStudio, you have the option to replace them with the imported information or to append the imported information to the existing station information.

> No duplicate checking is done when importing station information into existing station information using the option to append station records. You should check for duplicates when the import process has completed and remove any duplicates. You should also check your default station setting, particularly if you replace existing station information with imported information.

As a default, XStudio uses the file extension **.stns** when exporting or importing station information. The information is stored in an ini file structure.

Editing a Station

To edit information about a defined station, select the station by using the data navigator to locate the station or by using the [**Select Station**] button, which displays a drop-down list of the stations.

Select Station List

When the station information you wish to edit is displayed, select the field to edit and make the needed changes. Refer to the description of each of the station properties for additional information on field requirements.

When you have completed your edits, click on the "**post edit**" button on the stations data navigator, displayed as a check mark. Your entries will be validated and a message displayed if you have entered invalid information for a station field.

Deleting a Station

To remove a station from the stations table, select the station you wish to delete, using the navigation methods described in the Editing a Station section.

When the station you wish to delete is displayed, either click on the "**delete record**" button (displayed as a minus sign) on the stations data navigator or touch the [**Delete**] key. You will be prompted to confirm that you wish to delete the selected station.

> Deleting a station definition removes all information about that station. If you didn't mean to delete the station, you must ***close the Preferences dialog and choose not to save the changes***. When you reopen Preferences, the Stations list is restored to its last saved state. Be aware that not saving changes on exiting the Preferences dialog saves no changes you may have made anywhere else while working in the Preferences dialog.

Setting the Default Station

The default station is the station information that will be used by XStudio when starting up. The

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assigned default station information is used for loading the current day's log (if enabled) and creating audit records, until such time as the station is changed, typically by loading a log for a different station. While setting a default station is not required, if no default station is assigned XStudio will not load a log or perform other tasks that are station-specific when starting up. Unless you are using XStudio as an emergency playback system and may not know which of the stations you will be running until the need arises, you should assign a default station.

To set the default station, select the station whose logs, etc., you want XStudio to load on startup, using the data navigator or the [**Select Station**] button. Then, click on the [**Set Default Station**] button.

Stations toolbar

When closing XStudio preferences and changes have been made to settings, you will be alerted if you have not set a default station and offered the opportunity to do so.

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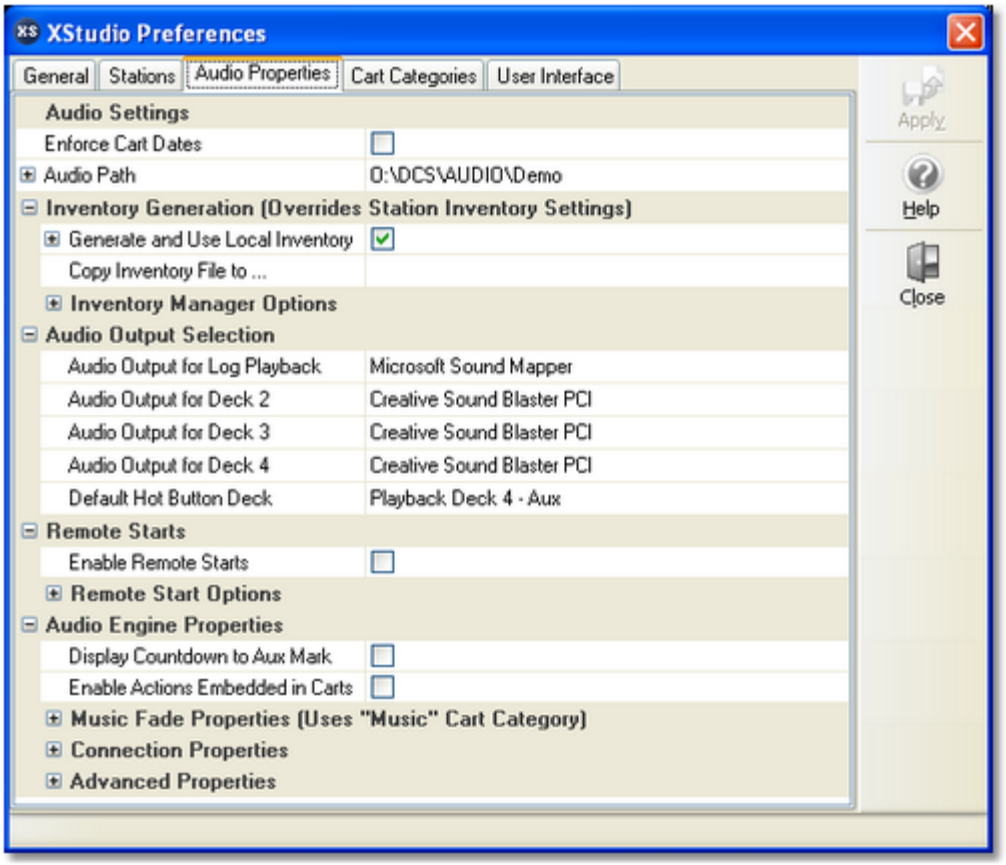
3.3 Audio Properties

The **Audio Properties** tab includes several groups of settings related to audio handling, including location of audio files, XStudio inventory list generation and maintenance, audio channel-to-deck mapping, remote starts and audio engine communication parameters.



Audio Properties

Audio Settings

The audio settings group of properties is used to identify the location of your audio files, decide whether or not you want XStudio to enforce start and end dates for audio playback, and optionally designate a backup audio folder. Items with a check mark in the **REQ** column require user entry, while unchecked items have default values which can optionally be changed.

Property	***REQ***	***Description***
Enforce Cart Dates		If checked and the host audio engine is XEngine, audio files (carts) that are out of date will not be played. If the host audio engine is a DCS or Maestro system, this setting has no effect. The DCS or Maestro unit determines whether or not out of date carts are played. The default for this property is unchecked, meaning cart dates will not be enforced.
Audio Path	✓	This property defines the drive and folder location of audio files that are used for playback. If the host audio engine is

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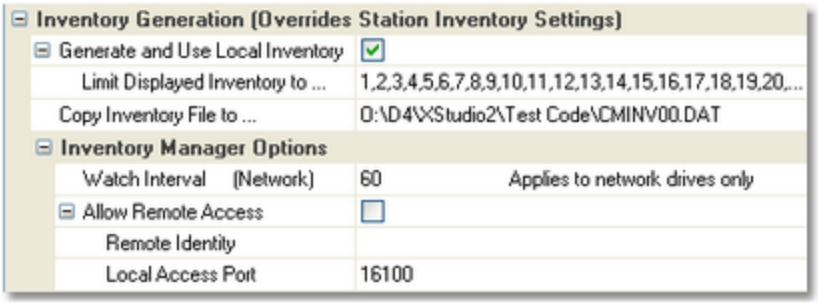
Property	REQ	Description
		XEngine, then this path must be entered. If the host audio engine is a DCS or Maestro, this field can be left blank. If you are running XStudio on Windows 7, avoid using mapped network drives.
└ Backup Audio Path		If XEngine is the host audio engine, you can optionally define a backup audio folder location. If an audio file is not found in the primary Audio Path when attempting to play the audio, XEngine will look in this folder for the requested audio and play it back, if found.

> XStudio does not automatically synchronize the contents of the primary Audio Path and Backup Audio Path locations. There are a number of readily-available, inexpensive software tools that perform this task. Consult with your XStudio vendor for current recommendations.

Inventory Generation

The inventory generation group of properties controls whether or not XStudio builds a list of available audio for use in inventory lists, etc., and if so, offers control over displayed inventory and audio file scanning operations.



Inventory Generation properties (expanded view)

Property	Description
Generate & Use Local Inventory	The default value is checked (enabled). If enabled, XStudio will scan the Audio Path for audio files and build a list of audio available for playback. The scan operation occurs when XStudio starts up and whenever a change in audio files in the folder is detected. Detected changes include arrival of new audio files, deletion of audio files, and changes in existing audio files.

> If checked (enabled), this property overrides any inventory settings for any of the defined stations.

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Property	***Description***
┗ Limit Displayed Inventory	As a default, XStudio will create an inventory list for its own use that includes all audio found in the Audio Path. Audio files used by XStudio contain distribution information referred to as "node numbers" or "station distribution". There may be as many as 64 different "work stations" (nodes) that are allowed to use a given audio file. This property allows you to restrict the displayed lists of audio files that XStudio has cataloged to just those nodes or work stations that you select. Changing this property has the effect, generally, of reducing the number of carts displayed in the XStudio inventory lists. See the topic on using the Include List edit dialog for more information on selecting nodes to include and editing the node list for more user-friendly names. Limiting the displayed inventory ***does not affect whether or not XStudio can play a particular cart (audio file)***. Even though a cart might not be visible in the inventory list, if XStudio is called upon to play the cart, an attempt will be made to play it. Normal date restrictions, if enabled, apply.
Copy Inventory File to...	The locally-generated inventory file can be copied to a user-defined location and file name for use by another application. To enable the feature, enter a fully-qualified file name in this field. If this entry exists at run-time, each time XStudio's local inventory is updated, a copy of the inventory data file is made. If the field is left blank, no copy is made.
Inventory Manager Options	
┗ Watch Interval	The watch interval is the frequency with which XStudio checks the primary audio folder for changes, in seconds. The default value is 60 seconds (every minute). ***This property applies to network drives only***. If your primary audio folder is a local drive, this setting is ignored. Valid interval entries range from 30 (30 seconds) to 86,340 (23 hours, 59 minutes).
┗ Allow Remote Access	This property, when enabled (checked), allows other Inventory Manager-aware applications to access inventory data that is created and maintained by XStudio.
┗ Remote Identity	If remote access to inventory data is enabled, this is the name by which XStudio's inventory information will be identified.
┗ Local Access Port	The port number used by other applications to connect to the XStudio inventory database. This port number must be different than the main XStudio database local access port or conflicts will occur. The default value is 16100.

Audio Output Selection

This group of properties allows you map available physical audio output channels to the XStudio playback decks. This setting is applicable only if you are using XEngine as the host audio engine (the default).

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If you are connecting to a DCS or Maestro, playback channel 1 on the host unit will be used for log playback and channels 2 and 3 map to the DCS or Maestro channels of the same number, as applicable. Refer to the topic on Using XStudio with DCS or Maestro for more information.

Map each XStudio playback deck using the drop-down list of available audio outputs. If a PC has a single sound card with a single audio output available, there will usually be two items in the list. The first item is typically named "Microsoft Sound Mapper" and corresponds to the audio device you have set as the default device to play Windows sounds - OS startup, close, etc. The second device will be the actual sound card in the PC. In this example, the two entries end up at the same place - the single audio output on the PC.

If your PC is equipped with only one sound card, be aware that Windows will be using the same device to play system sounds. It is highly recommended that you disable all system sounds in this case. This will prevent unwanted sound from appearing on your "on-air" channel.

If you have more than one sound card or a sound card equipped with multiple audio outputs, the list of available devices will be larger. It is highly recommended that you select a device other than the "Microsoft Sound Mapper" or the audio device that is set as the default audio device in Windows.

If you have a single sound card with a single output, you can still use the second, third and fourth audio decks in XStudio, if desired. Simply assign the same audio output as used for the Log Playback Device. At playback time, the audio playing on decks 1, 2, 3 and/or 4 will be mixed to the single output device.

Many standard sound cards will support 12 streams of audio mixed together (3 from each playback deck) on a single output. However, not all support that many streams. Consult your sound card documentation for information on how many streams are supported by the sound card.

Items with a check mark in the **REQ** column require user entry, while unchecked items have default values which can optionally be changed. Note that if no audio output channel is mapped to a deck, playback for that deck will be routed to the default Windows playback device.

Property	***REQ***	***Description***
Audio Output for Log (Deck 1)	✓	Select the audio output channel that will be used with Deck 1, the primary audio playback channel, from the drop-down list. As a default, all log items will play through this deck.
Audio Output for Deck 2	✓	Select the audio output channel that will be used with Deck 2 from the drop-down list.
Audio Output for Deck 3	✓	Select the audio output channel that will be used with Deck 3 from the drop-down list.
Audio Output for Deck 4	✓	Select the audio output channel that will be used with Deck 4 from the drop-down list.
Default Hot Button Deck		Select the audio playback deck that will be used with hot buttons from the drop-down list. When a blank (non-configured) button is configured using the hot button

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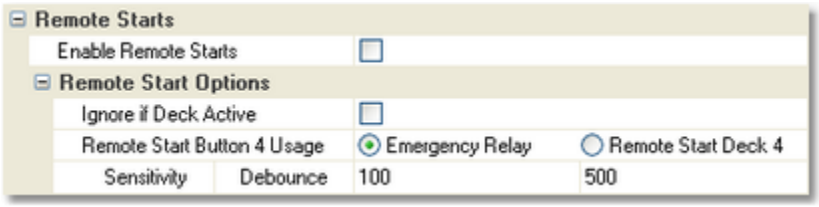
Property	REQ	Description
		configuration dialog or is configured by drag and drop from the log or inventory, the default deck selected here is assigned as the playback deck. The default value for this property is Deck 1.

Remote Starts

If the PC running XStudio is equipped with a game port, you can wire up remote starts to the game port and enable them for use with XStudio. See the Remote Start Interface topic for wiring specifics.



Remote Start Properties (Expanded View)

This group of properties optionally enables the remote starts and allows you to adjust both sensitivity (frequency of polling) and de-bounce.

Property	Description
Enable Remote Starts	The default is unchecked - remote starts are disabled. If checked, XStudio will attempt to initialize the game port for use.
Remote Start Options	
┗ Ignore if Deck Active	***This property applies to Live mode only***. The default is unchecked - the feature is disabled. To enable the feature, check this item. When enabled, if the playback deck for which the remote start was pressed is already playing audio and the deck playback source is the log, the remote start will be suppressed (ignored).
┗ Remote Start Button 4 Usage	Choose whether Button 4 of the Remote Start Interface is used as an emergency relay (the default for backward compatibility) or is assigned to playback Deck 4 as a remote start ala Decks 1..3.
┗ Sensitivity	When remote starts are enabled, XStudio polls them every few milliseconds to see if one of the remote starts has been pressed. This property controls the frequency of polling. The default value is 100 milliseconds (1/10th second). Valid entries range from 50 - 250 milliseconds.
┗ Debounce	This property controls the de-bounce duration and can be used to reduce the number of "double-fire" possibilities where a user presses the remote start repeatedly and rapidly or if you have issues with the remote start wiring circuit inadvertently issuing two pulses (button-presses) when only one is intended. When the remote start button is pressed (closed), XStudio will discard any additional closures of the button for the time value entered in this field, in milliseconds. The default value is 500 milliseconds. Valid entries range from 0 (disabled) to 1000 milliseconds (1

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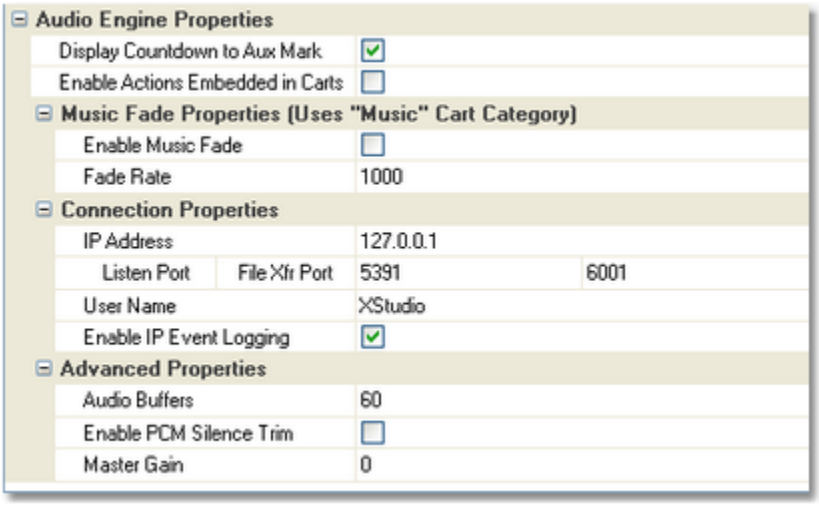
Property	Description
	second).

Audio Engine Properties

XStudio uses TCP/IP to communicate with the host audio engine, either XEngine or a DCS or Maestro host. In the latter case, rcServer software is used to convert the TCP/IP data to serial data that the DCS or Maestro can understand and act upon. See the topic on Using XStudio with DCS or Maestro for additional information.



Audio Engine Properties (Expanded)

At a minimum, XStudio needs to know the host's IP address and the ports to use for communications with the host audio engine. This group of properties allows you to change communication parameters, if needed, and change several optional properties.

> If you are using the default XEngine in a standard configuration, you will not need to adjust IP address and port properties unless some other application on the XStudio PC is already using one of the TCP/IP ports that are used by XStudio as a default.

Property	REQ	Description
Display Countdown to Aux Mark		As a default XStudio displays countdown values in the playback decks as values relative to total remaining play time. If this option is enabled, countdown values will be calculated and displayed to the Aux Mark of the cart.
Enable Actions Embedded in Carts		If checked, execution of Actions embedded in carts (audio files) is enabled. As a default, this property is disabled (unchecked). For information on how to use this functionality, review the topic Embedding an Action in a Cart.
Music Fade Properties (Uses "Music" Cart Category)		
└ Enable Music Fade		If enabled, all carts matching the defined "**Music**" cart

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Property	*REQ*	*Description*
		category will be faded down at Aux Mark during playback. Music fade applies to all playback channels (decks).
└ Fade Rate		If music fade is enabled, this value determines how quickly the audio is faded. The default value is 1000, the maximum value is 32000. The higher the value, the quicker the audio fade.
Connection Properties		
└ IP Address	✓	The IP address of the host audio engine. The default value is: **127.0.0.1** The default value should be used unless XEngine is installed on another PC or the rcServer software used to convert TCP/IP to serial for DCS and Maestro is located on another PC.
└ Listen Port	✓	Default: **5391** This TCP/IP port is used for control and response communications with the audio server engine. The value must be the same for both XStudio and the host. If XEngine is used and is located on the same PC, changes to the port numbers are automatically updated for XEngine. If this property is changed, you will need to restart XStudio for the changes to take effect.
└ File Xfr Port	✓	Default: **6001** This TCP/IP port is reserved for transferring file data between XStudio and the host audio server and ***is not presently used***. It is for future expansion.
└ User Name		Default: **XStudio** This setting is used only when using XStudio to control a DCS or Maestro system. It identifies XStudio to the rcServer application, which may be hosting several connections.
└ Enabled IP Event Logging		If checked, XStudio will log TCP/IP-specific events to a separate log file and would typically be used for troubleshooting communications problems between XStudio and a host audio server not located on the same PC as XStudio. The default value is unchecked (disabled).
Advanced Properties		
└ Audio Buffers	✓	The number of audio buffers that will be used by the audio engine. The default is 30. To reduce audio stutter or skip when audio files are located on a network drive, you can increase this value to a maximum of 256. Settings ranging between 30 (the default) and 90 should be adequate for most operating environments.
└ Enable PCM Silence Trim		If enabled, any "dead air" at the beginning of a PCM cart will be skipped when the cart is played. Applies to PCM carts only, apt-X and MPEG are not supported.
└ Master Gain		The master gain adjustment for XEngine (the audio engine). Valid values range from -60 to +6, the default is zero.

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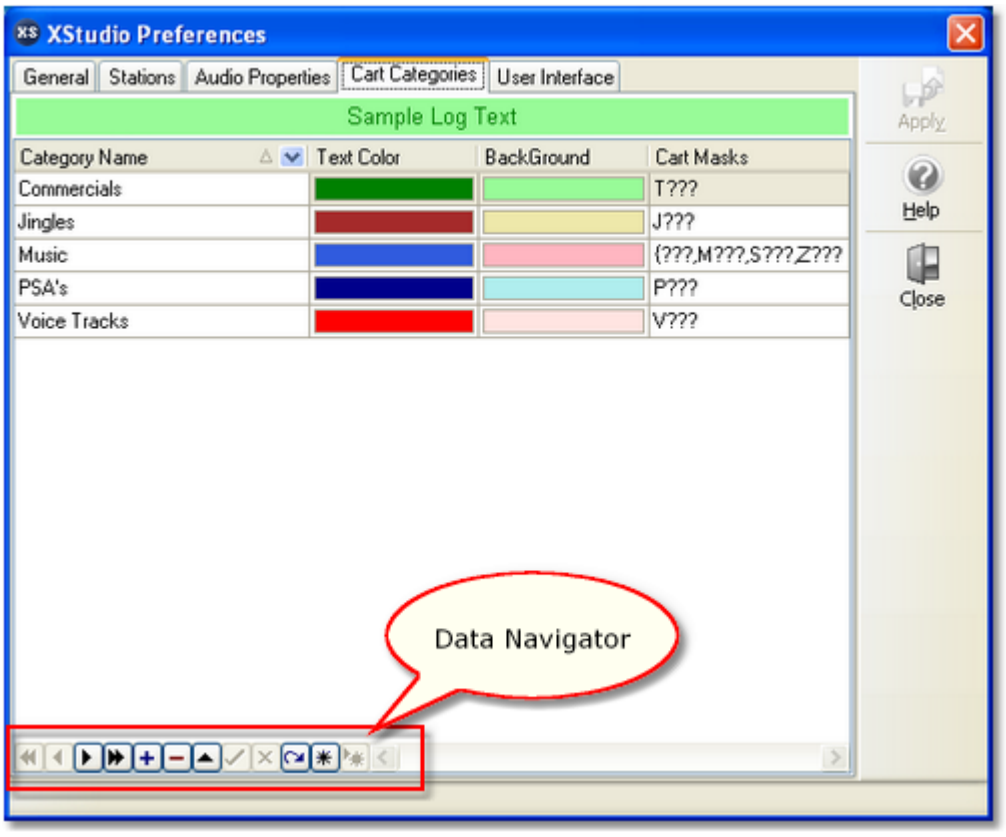
3.4 Cart Categories

Cart Categories are used to define audio categories for filtering inventory lists and to create log color schemes (background and text) that are used in the log display. The initial display of the Cart Categories page shows a table of defined categories, if any, and a data navigator bar which can be used to add, edit and delete cart categories.

You can have as many categories as you wish with multiple cart masks in each category. There must be at least one cart mask for each defined cart category.

There is one special cart category name that must be created if you are playing music with XStudio and want to take advantage of all available features. The category "**Music**" is used (in addition to log color schemes and inventory filtering) as the category to which Music Fade is applied (if enabled). It is also used for special log display handling if you have the main menu **View | Use Inventory Description on Logs** feature enabled (checked).

The example screen shot depicts a few of the commonly-defined cart categories. The example cart categories shown are included in the XStudio installation and can be imported to get started quickly with some basic categories.



Cart Categories

XStudio Cart Category Usage

Cart categories are used in a number of ways in XStudio:

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1. **Log Display**. When applied to a displayed log, any cart number that matches any one of the individual cart masks within a defined Cart Category will be displayed with the text and background color associated with the category. By using distinctive color combinations, you can more easily spot commercial clusters, for instance.

> If you define duplicate cart masks for different categories, a log item's color scheme will be the text and background color of the ***first category the log item's cart number matches***. Categories are sorted alphabetically by name.

2. **Inventory Display**. When applied to an inventory list, any cart number that matches any one of the individual cart masks within a defined Cart Category will the **included** in the displayed inventory list. For instance, the sample display shows several categories, including one called "Commercials". You can see from the display that the cart mask associated with the Commercials definition is "T???". This filter definition means that, when selected, only carts beginning with the letter "T" will be displayed in the inventory list.

> **Hint** For purposes of displaying filtered inventory, duplicate cart masks in different cart categories do not affect filtering as you are selecting a specific filter and matching carts to that filter only. If you wish to use some complex filters for inventory display and want to avoid disrupting the log color scheme, make sure you name the inventory-only cart category in such a way that it appears alphabetically ***after*** all categories you have defined that are used for the log color scheme. You might, for instance, create a name like "**ZZ My Category**" to ensure that the category gets pushed to the end of the list.

3. **Automatic Music Fade**. If this option is enabled, all audio items matching this category are automatically faded at Aux Mark. If you do not have a category named "**Music**" or your music content is part of another category, music fades will not occur.
4. Main menu **View | Use Inventory Description on Logs** feature enabled (checked). When this option is enabled, any log item matching the "**Music**" category is left alone - that is, the audio inventory description ***is not*** displayed in the log's Description field.

Cart Category Properties

Items with a check mark in the **REQ** column require user entry, while unchecked items have default values which can optionally be changed.

Property	***REQ***	***Description***
Category Name	✓	The name by which you will identify a category. Category names should be unique to avoid ambiguity.
Text Color		Select a text color from the drop-down list or by using the color customization dialog. The default text color is **Navy Blue**.
Background		Select a background color from the drop-down list or by using the color customization dialog. The default color is either **Gray** or **Tan**, depending on the operating system you are using.
Cart Masks	✓	At least one cart mask is required. See the Cart Masks Explained topic for information on valid cart masks and

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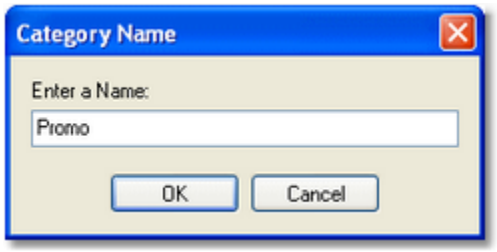
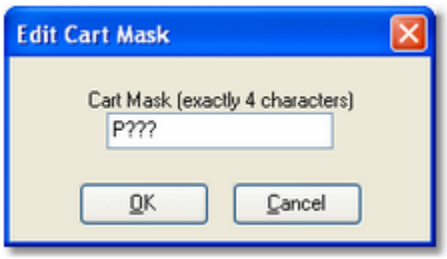
Property	REQ	Description
		the topic Using the Cart Mask Edit Panel for details on how to edit cart masks for a category.

Creating a New Cart Category

To create a new Cart Category, click on the insert button in the data navigator, marked with a " **+** " symbol - you can also used the [**Insert**] key. A dialog appears, prompting you to enter a category name. The name can be anything you wish and is usually text that identifies the category contents.



After entering the name, click on the [**OK**] button. A second dialog appears, prompting for an initial cart mask. Enter the mask, which must be four (4) characters in length. For additional information on cart mask creation, see the Cart Masks Explained topic.



When you have entered the mask, click on the [**OK**] button. The newly-created category appears in the category list.

To set the category text and background colors, [**Double-Click**] on the color you wish to change. The field display changes to reveal a drop-down list button and a color dialog button.

You can use the drop-down button to display commonly-used colors. Selecting a color causes an immediate change in the sample text display, located above the category list. The sample text display provides an idea of what the current color combinations will look like on the log.

If the color you'd like to use is not in the drop-down list, click on the color dialog button to display a standard custom color selection dialog. For more information on using the custom color selection dialog, see the Using the Color Customization Dialog topic.

To add additional cart masks to the category, or to edit the existing cart mask, [**Double-Click**] on the mask field. When editing the cart mask(s) for a category, a panel is displayed for managing the masks.

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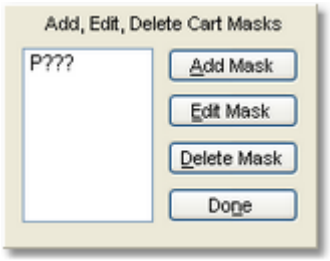

Cart Mask Edit Panel

See the topic Using the Cart Mask Edit Panel for details on the panel's usage and the Cart Masks Explained topic for information on valid cart masks.

When you finish editing the text color, background color and/or the cart masks, click on the [**Post**] button in the data navigator to save your changes.

Editing a Cart Category

To edit any one of the properties of a category, [**Double-Click**] on the item you wish to edit. You can also use the [**F2**] keystroke after selecting the item you wish to edit. When you have finished making changes, click on the [**Post**] button in the data navigator to save them.

Deleting a Cart Category

To delete a cart category, first select the category to be deleted. Either click on the delete button on the data navigator or press the [**Delete**] key. You will be prompted to confirm the deletion.

Deleting a cart category also deletes all cart masks associated with the category. If you didn't mean to delete the category, you must close the Preferences dialog and choose not to save the changes. When you reopen Preferences, the cart categories are restored to their last saved state. Be aware that not saving changes on exiting the Preferences dialog saves no changes you may have made while working in the Preferences dialog.

Exporting Cart Category Information

Cart category information can be exported to an external file for backup purposes or to perhaps create a standard set of categories that might be used among several work stations. All categories are exported, including the name, colors and cart masks. [**Right-Click**] on the cart category data table to display a pop-up menu. Select the menu item **Export Cart Categories**. You will be prompted for a file name for the exported information.

Importing Cart Category Information

You can import cart category information previously exported from XStudio. [**Right-Click**] on the cart category data table to display a pop-up menu. Select the menu item **Import Cart Categories** and follow the prompts.

When importing cart categories and some categories already exist, you have the option to either add (append) the imported categories to the existing list or replace the existing categories with the imported categories.

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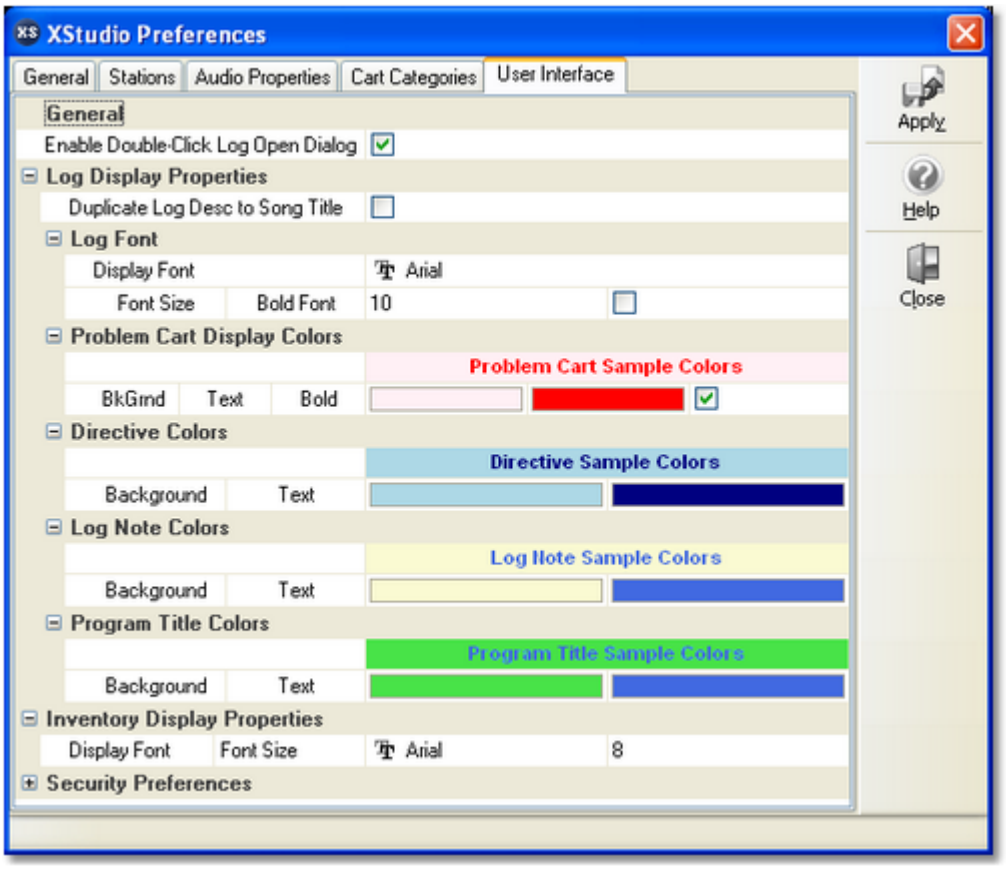
3.5 User Interface Settings

The **User Interface** tab includes a number of properties that allow you to control how a broadcast log (schedule) is displayed, along with settings to control access to the Preferences area. All settings on this page have default values and need be changed only if you wish to modify how XStudio displays the log or if you wish to restrict access to all Preferences settings.



User Interface properties

General User Interface Properties

General properties affect all of XStudio wherever a particular feature controlled by a property is used. At present, there's only one setting implemented for user convenience.

Property	***Description***
Enable Double-Click on Log Open Dialog	When manually opening a log, a dialog is displayed containing calendar dates, each indicating whether or not a log is available for the selected station and date. If this feature is enabled (checked), a [**Double-Click**] on that date will open the log immediately. The standard (default) behavior is to select a date and then click on the dialog [**OK**] button.

Log Display Properties

This group of properties provides the means to control several visual characteristics of a displayed

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broadcast log. The base log font type and size, along with text and background colors for non-audio log items are included in this group. Changes made in this group are dynamic - when you make changes and save (apply) them, the log's display characteristics are updated immediately upon exiting the Preferences area.

Where color combinations are selected, a sample of the appearance of the color combination is displayed for immediate feedback on your choices.

Property	***Description***
Duplicate Log Desc to Song Title	If you are using a music database with XStudio so that the full song title and artist for logged audio elements can be displayed, these items are placed in a columns separate from the standard log description. These columns may or may not be visible, depending on your preference. Non-music elements for these columns initially contain no information. Many users would prefer not to display the standard log description column when using a music database and displaying the song title and artist. This option, if enabled (checked), causes XStudio to copy non-music audio element standard descriptions to the song title column, thus allowing you to hide the standard log description column from view, saving some display space. When enabled, this feature has no effect on log elements that are songs - cart numbers found in the music database - it only affects carts (audio elements) not a part of the music database.
Log Font Properties - These settings affect *all* log items, audio and non-audio	
┗ Display Font	Select the font you wish to use for the log from the drop-down list of fonts available on your system. Font appearance is previewed as you scroll through the list of available fonts. The default font used for the log is **Arial**.
┗ Font Size	Set the font size using the spin edit buttons. Allowed sizes range from 8 to 80. The default font size is **10**.
┗ Bold Font	Check this item if you want ***all*** log items to be displayed in **bold**. If checked, any other bold font settings you have chosen for specific log items - problem carts, for instance - will not be distinguishable from other log items. The default setting is unchecked - normal font weights will be used for standard log items.
Problem Cart Display Colors	Problem carts can be displayed using a custom color scheme so that audio elements that are either missing or out-of-date can be highlighted. If the Cart Status Displayed option is enabled, any missing or out-of-date carts will be displayed using the color combination selected regardless of any cart category they may be a part of.
┗ Background	Select a background color from the drop-down list or by using the color customization dialog. The default color is either **Gray** or **Tan** depending on your operating system.
┗ Text	Select a text color from the drop-down list or by using the color customization dialog. The default color is **Red**.
┗ Bold	If checked, problem carts' text will be **Bold**. The default is unchecked - the normal font weight will be used.

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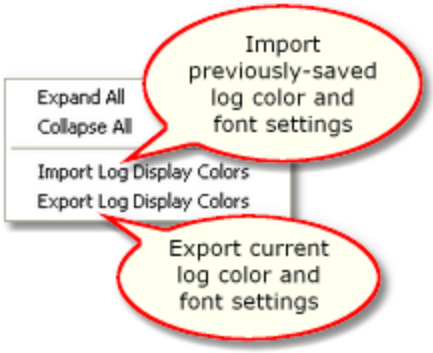
Property	***Description***
Directive, Log Note, Program Title Colors	This group of properties controls the color scheme of ***non-audio*** log elements - Directives, Program Titles and Log Notes. Each is assigned its own background and text color, but since the property assignment is the same in each case, they are consolidated for brevity.
┗ Background	Select a background color from the drop-down list or by using the color customization dialog. The default background colors are: Directive: **Aqua** Log Note: **Yellow** Program Title: **Lime Green**
┗ Text	Select a text color from the drop-down list or by using the color customization dialog. The default text color in all cases is **Navy Blue**.

Importing and Exporting Font and Color Information

You may have created the perfect color combinations for non-audio log items and want to preserve it for future use or to be able to restore the combination at some later date. XStudio provides the means to save current settings and restore saved settings on-demand. [**Right-Click**] anywhere on the color combinations page to pop-up the User Interface context menu.


Import previously-saved log color and font settings
Expand All
Collapse All
Import Log Display Colors
Export Log Display Colors
Export current log color and font settings

User Interface Settings context menu

When importing or exporting these settings, you are prompted for a file name. As a default, log settings files have the file extension ***.LCF*** (for **L**og **C**olors **F**ile). The information is stored in an ini file structure.

> Sample log color and font files are supplied with the XStudio installation and placed in the application directory. See the List of Files topic for specific file names.

Inventory Display Properties

This group of properties provides the means to control the visual characteristics of the main display's inventory list. The inventory list font type and size can be used to change how the inventory list is displayed to suit your needs.

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Property	Description
Display Font	Select the font you wish to use for the log from the drop-down list of fonts available on your system. Font appearance is previewed as you scroll through the list of available fonts. The default font used for the inventory list is **Arial**.
Font Size	Set the inventory display font size using the spin edit buttons. Allowed sizes range from 8 to 80. The default font size is **8**.

Security Preferences

There is a single displayed property in this group, used to force users to enter a password when accessing the Preferences area. The default security setting is that all users have free access to all available Preference settings.

Property	Description
Enable Configuration Security	If enabled (checked), users must enter a password to access the Preferences area. When this item is checked, a dialog appears asking you to enter a password twice to confirm your password choice. If the two entered passwords match and you save (apply) the changes, the next time a user attempts to access Preferences, a password prompt will appear and access will be granted only if the correct password is entered. ***Passwords are not case sensitive, but are stored in the XStudio settings file as "scrambled" text, ensuring a moderate level of security***.

Enabling Configuration Security has no effect on the ability of users to freely access the Automation Setup database and perform maintenance functions in that area.

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Operation - Using XStudio

Part IV

XStudio is fairly straightforward to use as an audio playback system. This section covers a number of topics, including a tour of the main user interface, audio playback and the controls that affect playback, and editing the log (program schedule) to change the content and/or content playback order.

If you're just starting out with XStudio and want to follow the quickest path to audio playback, refer to the ***XStudio Quick Start Guide*** supplied separately, which guides you through a short series of steps to get started quickly. For more detailed information on technical aspects of XStudio, keyboard shortcuts, programming XStudio, database and automated task information, refer the Reference section.

Launching XStudio

After XStudio has been installed, there will be shortcuts on your desktop (if you opted to have them created), menu items available in the ***Start | Programs*** menu area, and optionally, shortcuts in the ***Start | Programs | Startup*** folder to automatically launch both XEngine and XStudio when you login to your system.

If you've not opted to have XStudio start automatically at login, perform the following steps to launch XStudio:

1. Find the desktop shortcut or the menu item for **XEngine** and launch the program. This starts the audio engine, which handles the actual audio playback.

For additional information on launching XEngine, see the XEngine Reference topic.

2. Find the desktop shortcut or the menu item for **XStudio** and launch the program. This starts the XStudio main interface where virtually all interaction with XStudio occurs.

When successfully started, the main XStudio display will appear and look similar to the example shown.

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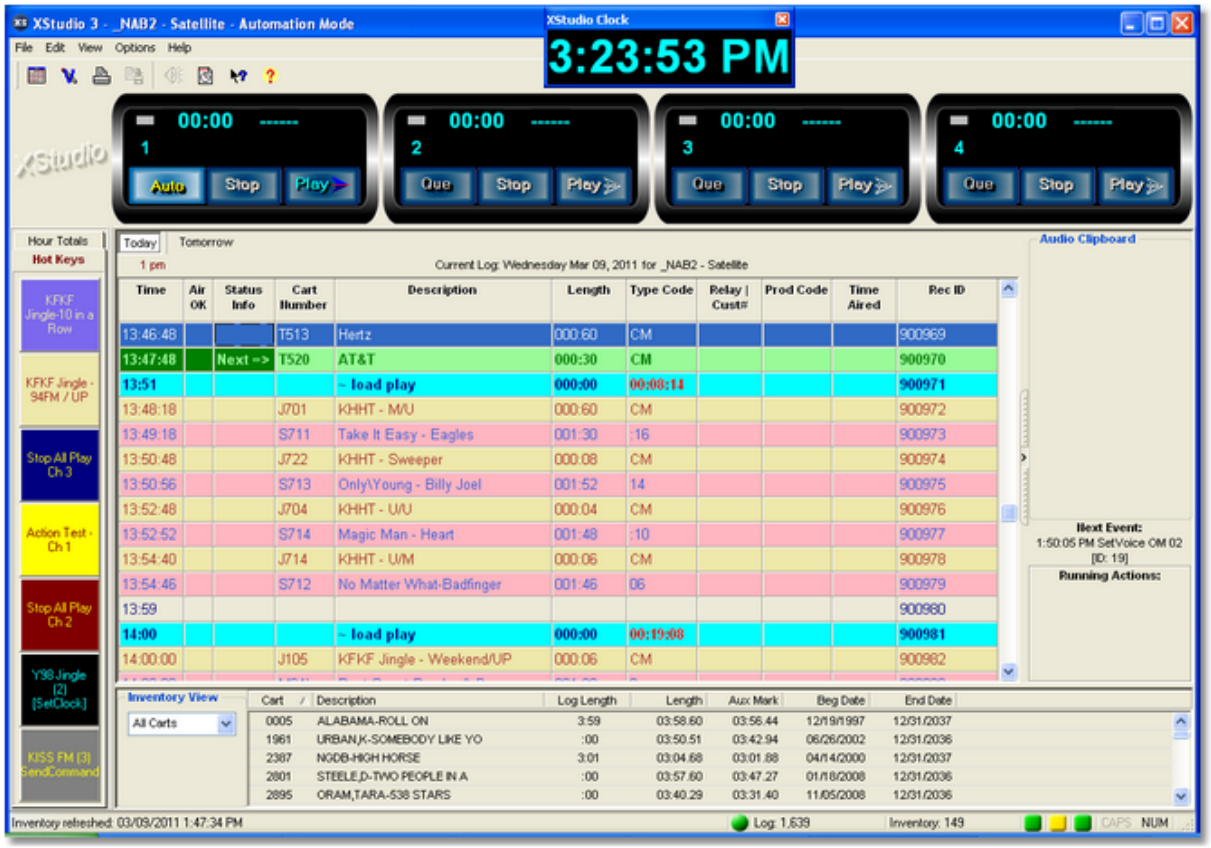

XStudio Main Display (shown with 4 decks enabled)

The example display shown is typical of the visual appearance of XStudio after the system has been configured in Preferences.

> Before you can use XStudio successfully, a minimal number of system properties must be customized to meet your needs. See the section on system configuration or the separate Quick Start Guide document for additional information.

It is important that XStudio be connected to a host audio server, either XEngine (supplied with XStudio) or a host DCS or Maestro via rcServer. There is an LED on the status bar at the bottom of the main display that indicates your connection status to a host. In order to actually play audio, the LED color must be green - in other words, a connection exists.

Green = Connected, Red or Yellow = Not Connected

If there is no connection, no audio will be played and attempts to play audio will result in an error message telling you that you are not connected to a host. For information on troubleshooting the audio engine connection, see the Problems Connecting to the Host Audio Engine topic.

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4.1 The XStudio Main Display

The arrangement, sizing and visibility of items on the main display can be customized to suit your preferences. Typically, you'll see three (3) or four (4) playback decks that correspond to playback channels 1, 2, 3 and/or 4 respectively, a menu and tool bars, the log (program schedule), hot buttons and inventory information. Here's an overview of the most prominent features of the main display:

- **Title Bar**. The Title Bar appears at the very top of the XStudio display and shows you the current station name and current operating mode.
- **Main Menu**. Directly below the Title Bar is the main menu, which provides access to all XStudio features and functionality.
- **Main Toolbar**. The main toolbar provides quick access to commonly used features, including opening a log, saving a log, log validation, printing a log, jumping to the "now playing" item on the log, jumping to the current time on the log, and system help. The toolbar can be floated away from the main display or completely hidden, if desired.
- **XStudio Clock & Backtimer**. The XStudio clock is a floating window that can be moved anywhere on the screen. ***As a default, the clock is not displayed***. The window can also optionally display the XStudio Backtimer. When the clock and/or backtimer is displayed by enabling the options under the **View** menu, you can also change the size of the text, text and background colors. For additional information, see the Using the XStudio Clock & Backtimer and About the XStudio Backtimer topics.
- **Playback Area**. The playback area consists of 1, 2, 3 or 4 playback decks, each with transport controls. You control how many decks are visible beyond deck 1, which is the primary playback deck and always displayed.
- **The Log**. The log display is located centrally right below the audio playback decks and occupies a majority of the main display area. The log functions as both the schedule of events and the playback document. You can add, edit, delete and move log items to modify the original schedule and control playback sequence of audio items on the log.

Log items successully played by XStudio

In addition to the standard information you might expect to see on the log, XStudio also marks successfully played items, as shown above.

XStudio always keeps the entire current-day (or emergency) log in memory and available to the user for browsing and editing. If operating in a mode other than Emergency Mode, XStudio will periodically check to see if the next-day log is available and if so, will load it. The next day's log can be viewed and edited on demand, if available.

If the broadcast log is changed by another application and the changed log is saved, XStudio will detect the change and reload the log as needed. This applies to both the current-day log and next-day log, if available and used. In the case of the current-day log (today's log), program content on the log prior to the current execution point is retained and only content that occurs beyond the current execution point is updated. This is known as "log splicing".

- **Hot Buttons**. A group of seven (7) buttons is displayed to the left side of the log as a

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default. Each button can be programmed to play a cart (audio file), perform an XStudio Action, or, if applicable, signal a host DCS or Maestro to perform one of its own user functions. The buttons re-size automatically as the main display size is changed and you can manually make them wider using the splitter control that separates the hot buttons from the log. A larger second set of hot buttons is available via the XStudio Cart Wall dialog, which contains user-defined "sets" of 300 buttons and can be shown or hidden on-demand.

- **Audio Clipboard**. The audio clipboard is located immediately below the playback decks and to the right of the log. The clipboard is used to create a list of carts for ad hoc usage on playback decks 2, 3 and 4. You can place items from the log or from the audio inventory list in the clipboard. The order of items in the audio clipboard can be controlled by dragging the items up or down in the list. The width of the clipboard is controlled using the splitter control that separates the log and audio clipboard. The audio clipboard can also be completely hidden (collapsed) if desired.

If you adjust the width of the audio clipboard or collapse it completely to hide it, the changes also affect the Next Event and Running Actions display panels.

- **Next Scheduled Event Status**. If you have any Scheduled Events, the next one that will execute is displayed in the ***Next Event*** window, located immediately below the audio clipboard. This display is automatically updated and is for information purposes only.
- **Running Actions Panel**. This control displays any XStudio Actions that are currently running (being performed). The panel lists all Actions that are running and is for information purposes only.
- **Audio Inventory**. The audio inventory is a list of carts (audio files) available for playback. Carts in the list can be dragged and dropped on the log, dragged and dropped into the audio clipboard, dragged and dropped to program a hot button, dragged and dropped on any of the playback decks for immediate playback, and added to the audio clipboard using the [**Ctrl-A**] keystroke. The vertical size of the list (number of items displayed) can be adjusted by using the splitter control that separates the log and the inventory list. You can completely hide the inventory list, if desired, to make more room for the log display. The horizontal width of the inventory list is automatically adjusted based on the main display size and any hot button resizing you do.
- **XStudio Status Bar**. Located at the very bottom of the main display, the status bar provides several bits of information, including short messages about recent operations, status of the log (edited or not edited), number of items on the log and in the inventory list, the current time and a group of LED's that provide status information on the state of Play Through Directives, tomorrow's log (available or not), and whether or not XStudio is connected to the host audio engine (XEngine or a DCS or Maestro).

You will probably want to run XStudio at or near the full screen size. You can manually resize the XStudio main display by dragging the tab on the lower-right corner of the status bar at the bottom of the XStudio main window. XStudio will remember its size, screen location and monitor (if a multi-monitor system) and restore the settings each time you start the program. Other settings like the size of the inventory display and audio clipboard are also saved at program close and restored when XStudio is restarted.

4.2 Audio Playback

Playing audio is a primary function of XStudio. Typically, playback of audio carts starts with the log - a station's program schedule. Audio playback can also be initiated with a hot button, from the audio clipboard and as an automation Task.

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This section focuses on playing audio from the log. There are two steps involved: a) "marking" the item you wish to play; and b) initiating playback in one of several ways.

Setting the "Next-To-Play" Log Item Manually

In order to play an audio item from the log, XStudio needs to know which item to play. This is achieved by "marking" a selected log item (cart) as the ***Next-To-Play*** item. To set the next item to play, select the item you wish to mark. Use the scroll bars or keyboard shortcuts to bring the item into view and select the item by clicking on it.

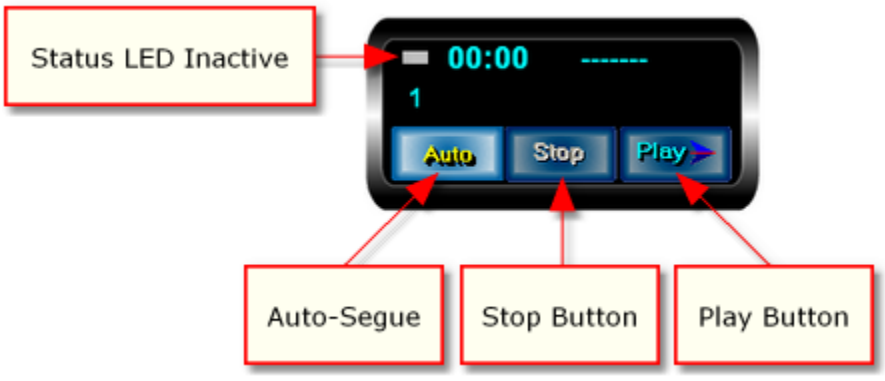
Mark the selected item using the [**F7**] keystroke or by double-clicking and answering "Yes" to the prompt. The newly-marked Next-To-Play item will be highlighted using a reverse color scheme and the text **Next=>** in the Status Info column.

XStudio will automatically advance and set Next-To-Play log items as the log is performed, marking the next playable log item found when a cart starts playing and its play source is the log.

> Any valid audio item (cart) on the log can be manually set as the Next-To-Play item, including items previous to the currently playing item, even if the item has already played. Similarly, any items on the log after the current item can be marked, making it easy to skip over items or jump back on the log as needed.

Playback Using Deck Transport Buttons

Once a log item has been marked as the Next-To-Play item, the most common method of starting playback is to use the primary playback deck (Deck 1) transport's [**Play**] button. The Deck 1 playback source is always the log, if present. Decks 2 and 3 use the audio clipboard as their playback source as a default. Refer to the section on Using Playback Decks 2, 3 and 4 for details.



Deck 1 Transport - Idle

When you click the [**Play**] button, XStudio sends a command to the audio engine to begin playing the log item marked as Next-To-Play. The Deck 1 (primary) transport is updated to reflect the item that is

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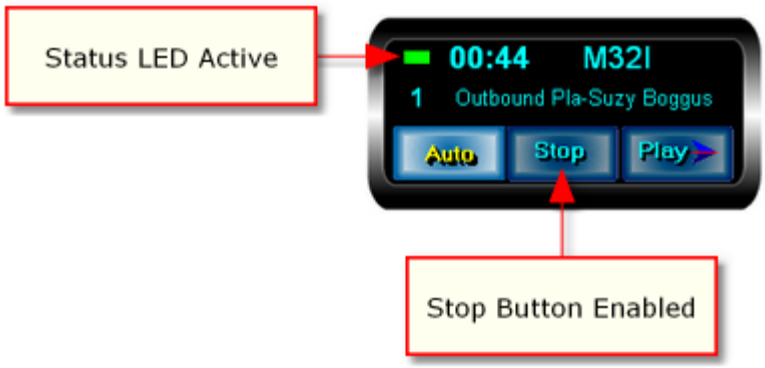
now playing.

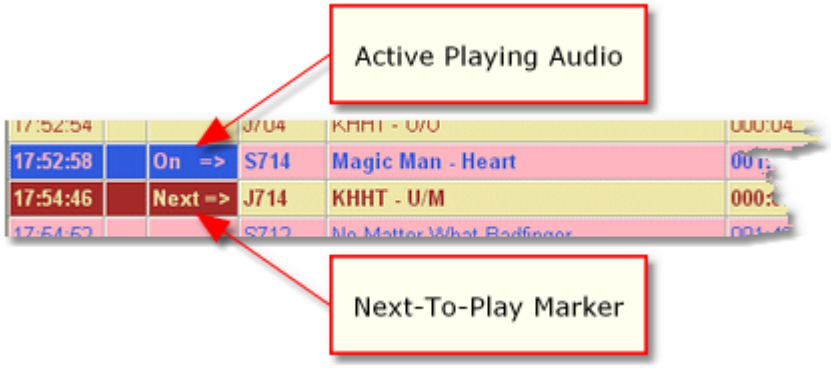


Deck 1 Transport - Active

When an audio item is active on a playback deck, the [**Stop**] button is enabled, as shown. The deck displays the remaining play time of the cart, along with its number and description. Decks also have a status light (LED) that indicates the deck is active and a cart is playing.

> As many as three (3) carts, also referred to as audio streams, can be playing simultaneously on each of the available decks. The remaining play time, cart number and description of the ***most recently started cart*** is displayed on the deck.

If an active audio item came from the log, the log item is marked so you can easily distinguish the items currently playing from the log. Generally, there will only be one item marked as **On=>**, but there could be more than one if XStudio is transitioning from one audio item (cart) to another and audio overlap is occurring.



When a playing cart (audio item) reaches its end-of-message (Aux Mark), what XStudio does next is dependent on several playback options that you control. For instance, XStudio may simply finish playing the audio and wait for you to do something else. More commonly, XStudio will automatically start the next valid cart on the log, starting playback of the next item even as the previous item is finishing, which results in audio overlap - a smooth, seamless transition from one cart to another. See Playback Options later in this topic for details on how you control what XStudio does as the end of audio playback occurs for a log item.

Using Playback Decks 2, 3 and 4

Playback decks 2, 3 and 4 in XStudio are generally used for specialized audio playback actions. You

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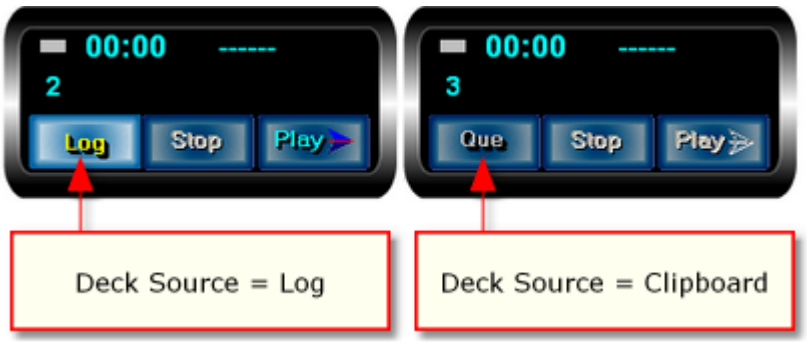
might use one of these decks, for instance, to play a cart from the audio clipboard - a playback activity that has nothing to do with the log. These secondary decks are also used for playback using hot buttons and may be used as a place to audition audio off-air.

As a default, decks 2, 3 and 4 do not interact with the log - the audio source for each is the audio clipboard. When the deck playback source is the audio clipboard, the [**Play**] button is armed only if there are carts in the clipboard. These decks can be used to play the Next-To-Play log item by setting the deck source to the log.



Playback Decks 2, 3 & 4 Source Selection

The example deck display shows the appearance of the decks when the playback deck source is set to the log (Deck 2) and when the playback source is set to the audio clipboard (Deck 3). The deck source button is a toggle, meaning as you click on it, the deck's source is set to the opposite of the current deck source setting.

Setting a Deck 2, 3 or 4 playback source to the log is most often used when you are running a live air shift and want to cross-fade from one audio item to the next when both items are on the log.

When the deck playback source is set to the log and the [**Play**] button is pressed, the log item marked as Next-To-Play is started on the selected playback deck.

At the same time, the [Auto] button is turned off (if it was on) to provide full control over when the next audio item on the log will be started.

To resume normal auto-sequencing of log playback following usage of either Deck 2, 3 or 4 to play from the log, you will need to turn the [**Auto**] button back on (enable auto-segue). For information on automatically enabling auto-segue when operating in Automation mode, review the property setting that controls this action in Preferences.

Alternate Playback Controls

Besides using the deck transport [**Play**] buttons to start playing audio, there are two other methods of starting playback that have the same effect as clicking on the transport [**Play**] button for a selected deck.

Remote Start

Optionally, remote starts can be enabled in XStudio. When remote starts are wired up to your PC and you have enabled them in Preferences, pushing the appropriate remote start button associated with Deck 1, 2, 3 and optionally Deck 4, has exactly the same effect as clicking on the deck's [**Play**] button. For more information on implementing remote starts, see the topic on the Remote Start Interface and the Preferences Remote Starts topic.

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Keyboard Play Start

XStudio implements a special keystroke combination for each of the three playback decks. These keyboard shortcuts are always active and available to the end-user. For instance, to play the Next-To-Play item on the log, press and hold down the [**Ctrl**] (control) key, followed by the [**1**] key, located above the "Q" key on a standard keyboard. This has the same effect as clicking on the [**Play**] button on the Deck 1 transport. This shortcut is often represented as [**Ctrl-1**] in shorthand. The keyboard shortcuts for each deck are as follows:

Deck 1 = [**Ctrl-1**] (Control-1)

Deck 2 = [**Ctrl-2**] (Control-2)

Deck 3 = [**Ctrl-3**] (Control-3)

Deck 4 = [**Ctrl-4**] (Control-4)

For a complete list of available shortcuts, see the topic Keyboard Shortcuts.

Playback Options

What happens when XStudio reaches the end-of-audio (EOM or Aux Mark) on a playing cart depends on a number of factors, including the source of the audio item (log, inventory, clipboard, hot button), the state of the [**Auto**] (auto-segue) button, along with a few others.

Under normal default operation, XStudio will automatically play the Next-To-Play item on the log if the audio item finishing play came from the log. If the playing item did not come from the log, XStudio does nothing in terms of automatic playback. Here are options that affect automatic playback (sequencing) of the log:

Property	***Default***	***Effect***
[**Auto**] (Auto-Segue) Button	Enabled	When end-of-audio of a playing item on Deck 1 is reached, the state of this button determines whether XStudio attempts to play the next available cart (Next-To-Play). If enabled (the default), the next item is played. If disabled, the current item finishes playing and no further play action is taken by XStudio.
Play Through Directives	Enabled	If this option is enabled and auto-segue is also enabled, XStudio will continue playing items on the log, even though a Log Directive is encountered. This option is enabled or disabled from the **Options** menu on the main display.
Wrap Log Option	Disabled	If this option is enabled and XStudio reaches the end of a log and the next day's log is not available (depending on mode of operation), XStudio "wraps around" to the beginning of the loaded log and continues. This option is enabled or disabled from the **Options** menu on the main display.

The current operating mode and changes to the operating mode, whether done manually or as an automated Task, will have an effect on these settings. In Satellite mode, for instance, the Play Through Directives option is disabled

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when the mode is set so XStudio knows the boundaries of a local break. See the topic on Operating Modes for additional information on modes of operation XStudio supports and how these modes affect operation.

Playback Using Hot Buttons

Playing audio with a hot button is as simple as clicking on the button. The audio will be played immediately on the playback channel you selected when configuring the button. For details on setting up hot buttons, see the topic on Hot Buttons.

When a cart is played from a hot button, XStudio treats the cart differently than a cart played from the log. Here's a summary of how XStudio handles a cart played from a hot button:

- Playing a cart with a hot button does not affect any audio currently playing on the target audio channel (deck).
- A cart played from a hot button does not affect normal auto-sequencing of audio items on the log if log playback is active. Normal audio overlap will occur when a cart playing from the log signals EOM (Aux Mark). The hot button cart's EOM is ignored for purposes of auto-sequencing the log.
- A hot button can be clicked multiple times, resulting in multiple plays of the same cart. The current limit is three (3) streams of audio per output channel playing simultaneously. An error message is displayed if you attempt to play more than 3 items simultaneously.
- If the cart programmed for the hot button does not exist, an error message is displayed.
- If you have the option Enforce Cart Dates set and are using XEngine as the host audio server, hot button carts that are out-of-date will not play and an error message is displayed.

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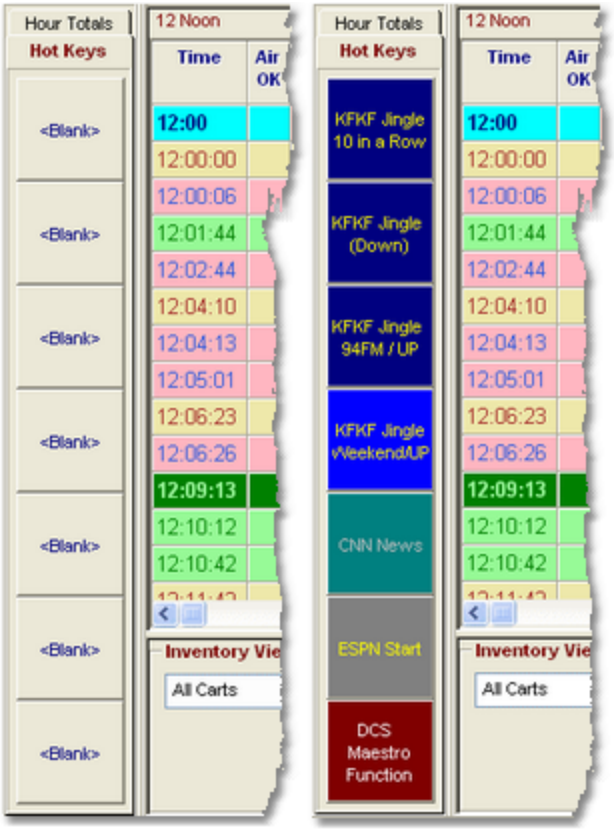
4.3 Hot Buttons

XStudio "hot buttons" are instant-execution buttons that can be programmed to play a cart on demand or to execute an XStudio Action. This topic describes how to set up and use hot buttons.

There are two hot button areas in XStudio. One set is located on the main display and is a minimal set intended for items that might be used frequently by all users. A larger second set is available via the XStudio Cart Wall dialog, which contains user-defined "sets" of 300 buttons. The Cart Wall dialog might be used for individual user sets of buttons.

Main Display Hot Buttons

The XStudio main display hot buttons are located along the left side of the display in an area that features two (2) tabs - one to display the hot buttons, the other to display a list of hourly audio content totals. To view and use the hot buttons, select the **Hot Keys** tab. The appearance of the buttons will vary, depending on whether or not they have been programmed and the choices you make for coloring the buttons.



XStudio Hot Buttons - Before and After Configuration

Cart Wall Hot Buttons

The XStudio Cart Wall can be displayed or hidden using the main menu's ***View / Show Cart Wall*** menu item or by using the key combination [**Ctrl-H**].

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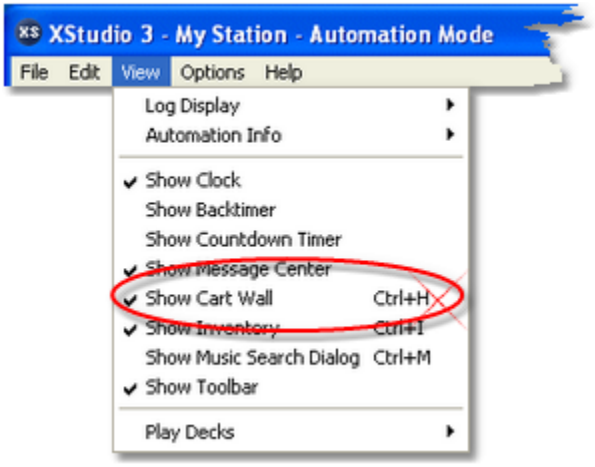
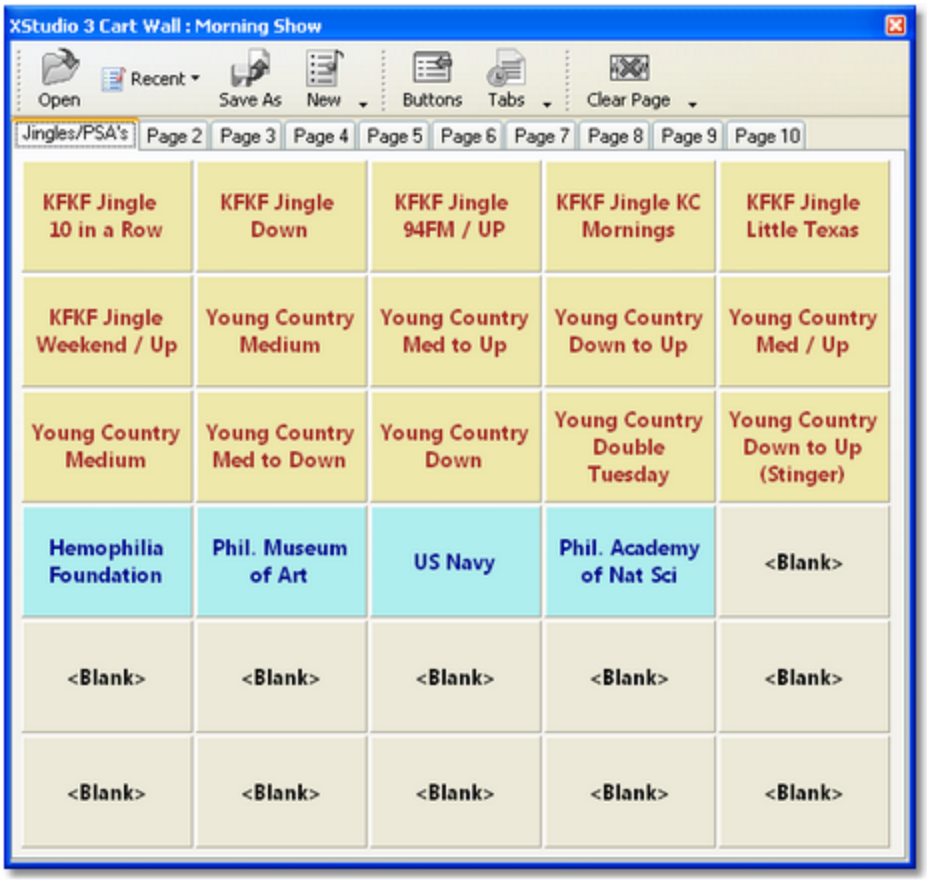


The Cart Wall window is hidden as a default and does not display the very first time XStudio is launched. When XStudio is closed, the Cart Wall's state (shown/hidden and screen position) is recorded and restored the next time XStudio is started.



For additional information on Cart Wall features and how to use Cart Wall, review the topic Using the XStudio Cart Wall.

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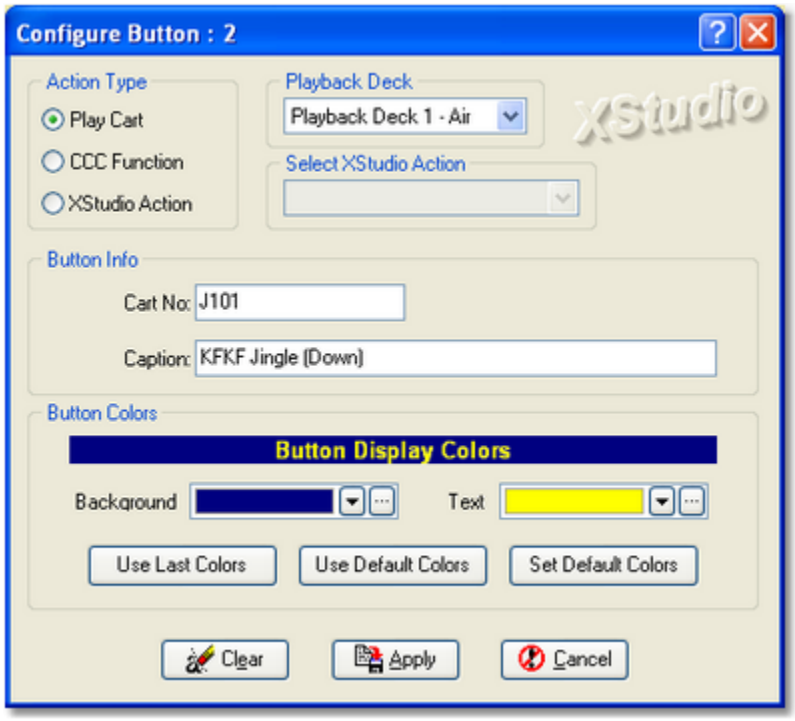
Configure a Hot Button Using Drag and Drop

The easiest way to set up a hot button to play a cart is to select an audio item (cart) from the log, the inventory display or (if enabled) the music search dialog, drag it onto the button and drop it. The cart number of the dragged item is recorded, and the cart description becomes the button's caption. If the target button was not configured or was configured as a **Play Cart**, the change is immediate. If the button was originally a **CCC Function** or **XStudio Action**, you will be prompted to confirm that you want to make the change.

When using drag and drop to configure a hot button for audio playback, if the cart number falls within any of the defined Cart Categories, the category colors are automatically applied. If you wish to modify these properties, use the button configuration dialog, as described in the next section.

Using the Configure Hot Button Dialog

The XStudio button configuration dialog provides access to all hot button properties. In order to configure (program) a button to perform an XStudio Action or perform a CCC Function, you must use the hot button configuration dialog. To display the dialog, [**Right-Click**] on the button you wish to modify.



Play Cart Configuration

The hot button configuration dialog dynamically changes based on the button's selected execution type. Unneeded fields (properties) for the selected button execution type are disabled.

Hot Button Properties

Hot buttons have a number of user-definable properties that are set during the configuration (programming) of a button. These properties control the button's execution type (play audio, initiate an Action), button caption, button color scheme and the specifics of the button's execution type. Selected properties are disabled based on the button execution type.

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Property	***Description***
Action Type	Determines what action will be taken when the button is pressed (clicked). Options are **Play Cart** (default), **CCC Function**, and **XStudio Action**. This property also dictates which other properties are enabled when programming a button. The **CCC Function** execution type is applicable only when you are using a DCS or Maestro unit as the host audio engine.
Playback Deck	If the button Action Type is **Play Cart**, this property is enabled and allows you to select from a drop-down list which of the playback decks on which the cart will be played. For other Action Types, this property is disabled.
XStudio Action	If the button Action Type is **XStudio Action**, this property is enabled. Select the Action you wish to execute when the button is clicked from the drop-down list of available Actions. For other Action Types, this property is disabled.
Cart No | Function Name | Action Name	This property is used for the cart number if the Action Type is **Play Cart**, and is used to enter the function name if the Action Type is **CCC Function**. ***CCC Function names are case sensitive***! Make sure you enter the function name exactly as it appears in the host DCS or Maestro system. The maximum allowable length of the function name is **25 characters**. The host system may restrict a function name length to fewer characters. This property is automatically maintained if the Action Type is an **XStudio Action**. As you change the Action Type, the label for this property changes to reflect the correct type of information that is required.
Caption	The text (caption) that will be displayed on the button to identify the button's purpose. The maximum length of text you enter is limited to **25 characters**.
Background Color	The button's background color. Select a color from the drop-down list or by using the color customization dialog. You can also use the [**Use Last Colors**] or [**Use Default Colors**] buttons to assign both background and text color simultaneously.
Text Color	The button's text color. Select a color from the drop-down list or by using the color customization dialog. You can also use the [**Use Last Colors**] or [**Use Default Colors**] buttons to assign both background and text color simultaneously.

Programming a Cart Play

To configure a hot button to play a cart when clicked, select **Play Cart** as the Action Type. Enter the cart number you wish to play in the ***Cart No*** field, exactly 4 characters, as shown in the Play Cart

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Configuration graphic above.

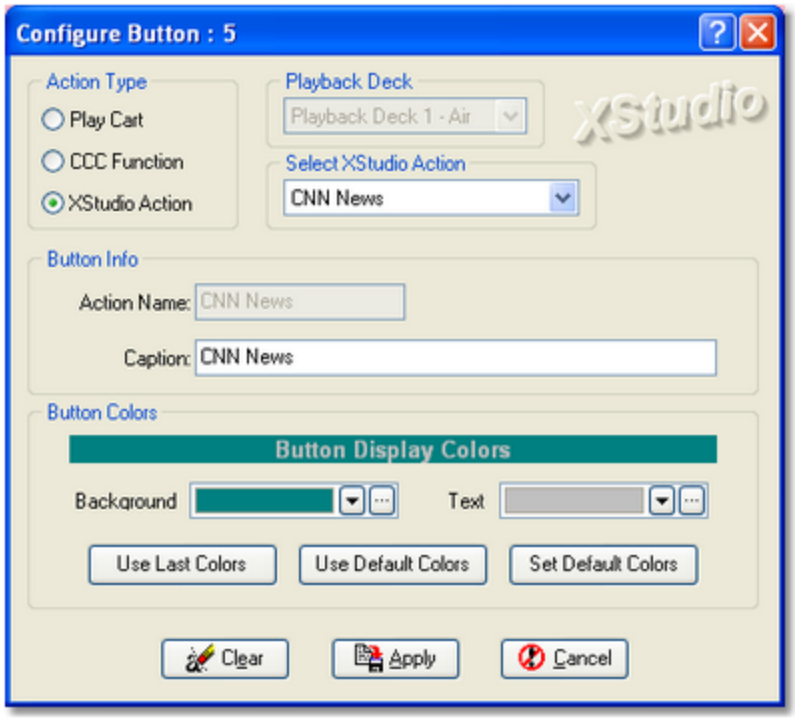
Enter a caption of your choosing - this becomes the button text and should describe the audio that will be played when the button is clicked.

> **Hint** The quickest way to program a hot button to play a cart is to drag a cart from the log or from the inventory onto the button. Then, open the hot button configuration dialog to make any desired changes in the button caption and button colors.

When you have completed the button configuration, click on the [**Apply**] button to make your changes effective. Use the [**Cancel**] button to discard any changes, keeping the button configuration as it was before you began editing properties

Programming an XStudio Action

To configure a hot button to execute an XStudio Action when clicked, select **XStudio Action** as the Action Type. The display will update and look similar to the example.



XStudio Action Configuration

Select the Action to perform from the drop-down list of available Actions under the **Select XStudio Action** label. The Action Name property is automatically updated with your selected Action name.

Enter a caption of your choosing - this becomes the button text and should describe what the button will do when clicked.

When you have completed the button configuration, click on the [**Apply**] button to make your changes effective. Use the [**Cancel**] button to discard any changes, keeping the button configuration as it was before you began editing properties.

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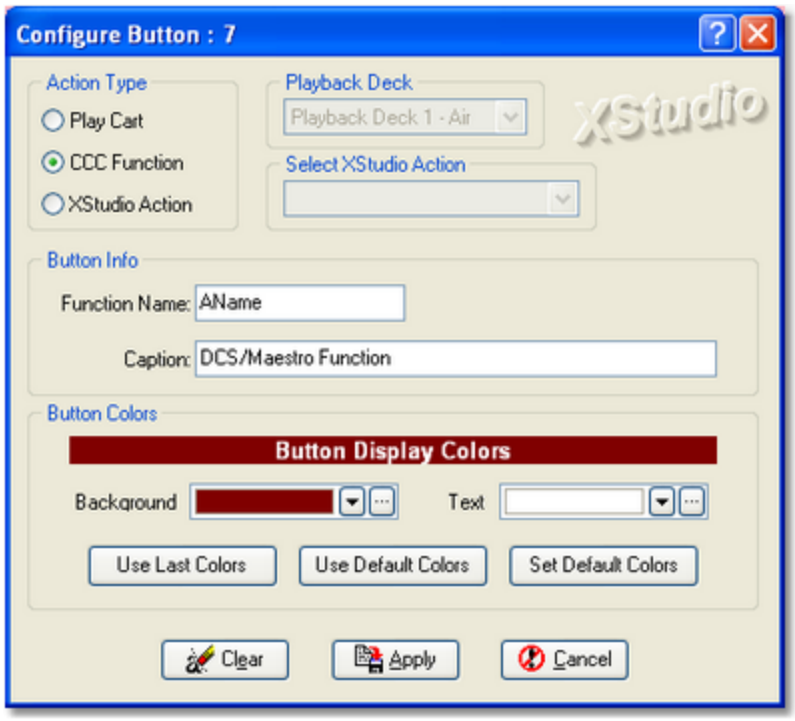
Programming a CCC Function

To configure a hot button to have a host DCS or Maestro system execute a CCC Function, select **CCC Function** as the Action Type. The display will update and look similar to the example.



CCC Function Configuration

Enter the name of the function you want the host DCS or Maestro system to execute exactly as it appears in the host system.

> ***CCC Function names are case sensitive***! Make sure you enter the function name exactly as it appears in the host DCS or Maestro system. The maximum allowable length of the function name is **25 characters**. The host system may restrict a function name length to fewer characters.

Enter a caption of your choosing - this becomes the button text and should describe what the button will do when clicked.

When you have completed the button configuration, click on the [**Apply**] button to make your changes effective. Use the [**Cancel**] button to discard any changes, keeping the button configuration as it was before you began editing properties.

Clearing a Button Configuration

You can "erase" the contents of a button using the [**Clear**] button located at the bottom of the dialog. Clearing a button erases the cart number and description information, resets the button colors to the default background and text colors and resets the Action Type to Play Cart.

Click on the [**Apply**] button to complete the action. The button's stored properties are erased.

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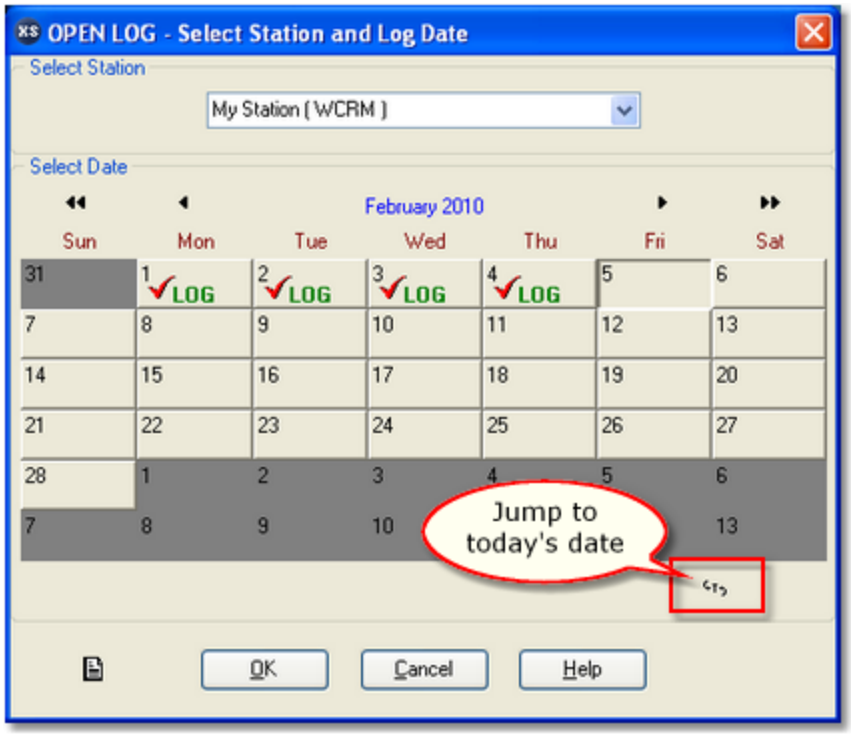
4.4 Log Editing & Validation

Operation of XStudio can involve quite a bit of interaction with the broadcast log (schedule), including such things as opening or creating a log, editing the log by adding, changing, deleting or moving log items and saving log changes. In addition, you can validate a log - that is, compare the log against the available inventory to see what items might be missing or have date problems.

This section covers these topics, plus information on managing the log's appearance, searching the log, printing logs, using the inventory list with logs and emergency logs.

4.4.1 Opening a Log

To open a log, click on the [**Open Log**] button on the main toolbar. You'll be presented with a display of available stations and a calendar from which to choose a log.



The calendar display shows station logs that are available for the calendar dates. A check-mark and the word "**LOG**" appears on dates where there are logs for the selected station.

Select a Station

To select a different station, click on the down-arrow icon in the station list. A list of available stations is displayed from which to choose. Stations are identified and set up in Preferences on the Stations tab. You can also use the [**Alt-DnArrow**] keystroke if the Select Station field is active.

Select a Log Date

To select a log date, [**Left-Click**] on the date you want. If you select a date that has no log and click [**OK**], you'll be prompted to create a new log, if desired, or cancel the operation.

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You can also use a [**Double-Click**] to open a selected log without having to click on the [**OK**] button by enabling this functionality in Preferences.

Navigating the Calendar Display

In addition to mouse control and selection of logs, you can also use the keyboard. As with most Windows applications, use the [**Tab**] to move from control (or button) to control.

Within the calendar control, use the [**LeftArrow**], [**RightArrow**], [**UpArrow**] and [**DnArrow**] keys to move among the displayed days.

[**PgUp**] changes the calendar to the previous month, [**PgDn**] changes the calendar to the next month.

[**Ctrl-PgUp**] moves to the previous year, [**Ctrl-PgDn**] moves to the next year.

To return to today's date on the calendar, click on the '**GT**' (Go Today) button in the lower right portion of the calendar.

When you have selected the log date for a selected station, click on [**OK**] and the log will be opened. A gauge at the bottom of the main display indicates the progress of opening the file.

Immediately after the log is loaded, it is checked for out-of-sequence times and conflicts like having two items on the log at the same time. If problems are found, they are fixed and a dialog is presented, offering you the opportunity to see what changes were made. You can save the change log if needed for later review. [**Right-Click**] on the changes log display and select the **Save to File** option. You'll be prompted to select a file name. The change log is saved as a standard text file.

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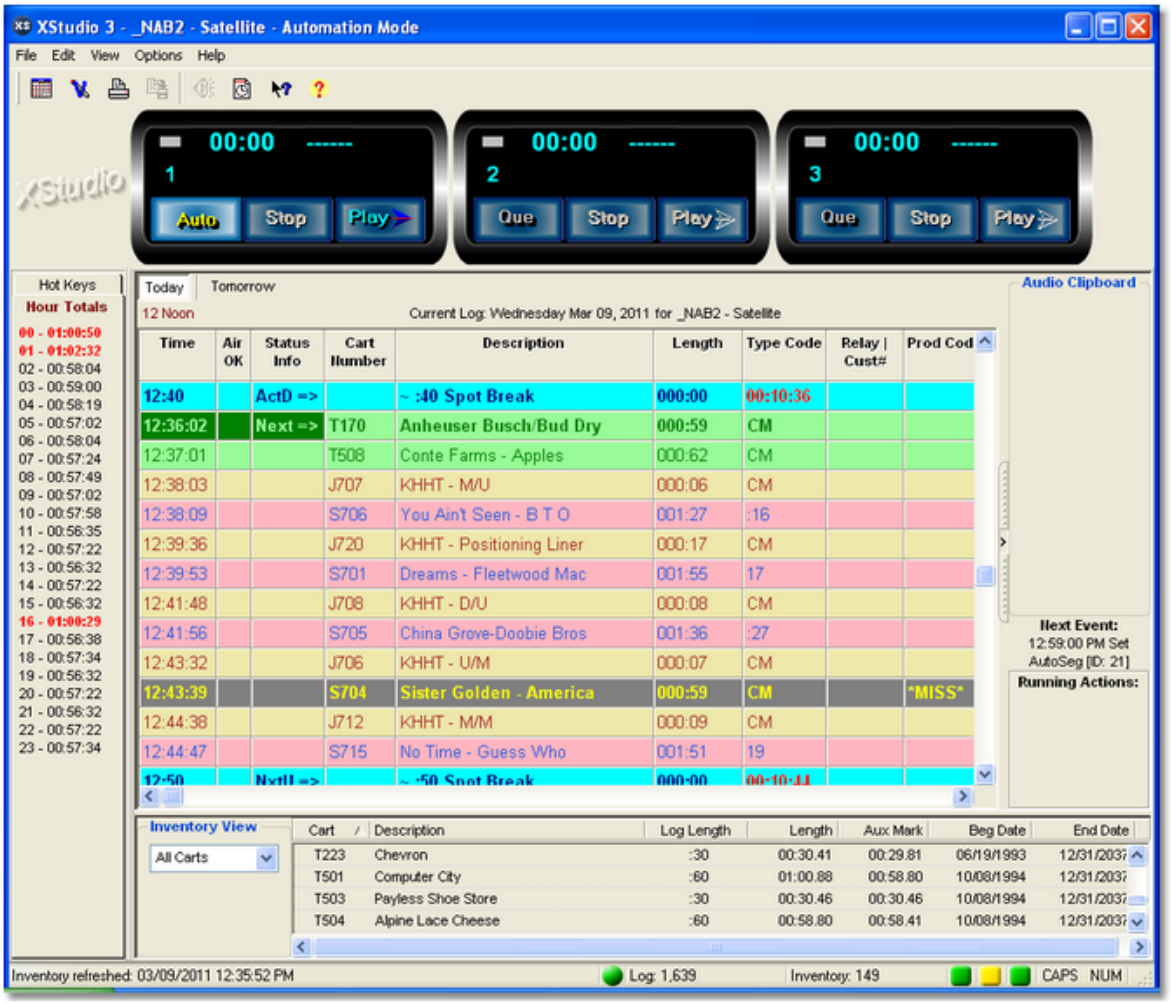
4.4.2 Editing a Log

When a log has been selected and opened, the main display will appear similar to the example shown here. There are three main areas in this display: a) hourly audio content totals; b) the log; and c) inventory display. There is a tool bar (similar to the one shown) that provides button access to commonly-used functions. To determine a button's use, float your mouse over it for a hint.


XStudio 3 - _NAB2 - Satellite - Automation Mode
File Edit View Options Help
00:00 1 Auto Stop Play
00:00 2 Que Stop Play
00:00 3 Que Stop Play
Hot Keys
Hour Totals
Today Tomorrow
12 Noon
Current Log: Wednesday Mar 09, 2011 for _NAB2 - Satellite
Audio Clipboard
Time Air OK Status Info Cart Number Description Length Type Code Relay | Cust# Prod Cod
12:40 ActD => ~ :40 Spot Break 000:00 00:10:36
12:36:02 Next => T170 Anheuser Busch/Bud Dry 000:59 CM
12:37:01 T508 Conte Farms - Apples 000:62 CM
12:38:03 J707 KHHT - M/U 000:06 CM
12:38:09 S706 You Ain't Seen - B T O 001:27 :16
12:39:36 J720 KHHT - Positioning Liner 000:17 CM
12:39:53 S701 Dreams - Fleetwood Mac 001:55 17
12:41:48 J708 KHHT - D/U 000:08 CM
12:41:56 S705 China Grove-Doobie Bros 001:36 :27
12:43:32 J706 KHHT - U/M 000:07 CM
12:43:39 S704 Sister Golden - America 000:59 CM *MISS*
12:44:38 J712 KHHT - M/M 000:09 CM
12:44:47 S715 No Time - Guess Who 001:51 19
Next Event:
12:59:00 PM Set
AutoSeg [ID: 21]
Running Actions:
Inventory View
All Carts
Cart Description Log Length Length Aux Mark Beg Date End Date
T223 Chevron :30 00:30.41 00:29.81 06/19/1993 12/31/2037
T501 Computer City :60 01:00.88 00:58.80 10/08/1994 12/31/2037
T503 Payless Shoe Store :30 00:30.46 00:30.46 10/08/1994 12/31/2037
T504 Alpine Lace Cheese :60 00:58.80 00:58.41 10/08/1994 12/31/2037
Inventory refreshed: 03/09/2011 12:35:52 PM
Log: 1,639
Inventory: 149
CAPS NUM

The log display table is where most of your work will be done. There are a number of basic actions that you will perform, including inserting an item, editing an item and deleting an item.

Inserting a Log Item

Inserting a log item places the new item immediately in front of (ahead of) the current selected log item. To insert an item, touch the [**Ins**] key. Alternatively, you can [**Right-Click**] and select the menu item **Add Log Item** or select **Edit | Add Log Item** from the main menu. In all cases, an insert dialog is displayed, allowing you to choose the type of item to insert.

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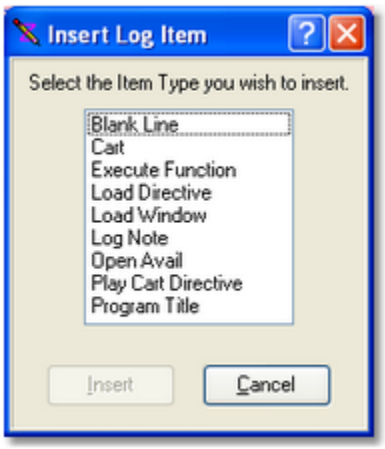

If you are positioned on the last item on the log, you'll be prompted to either insert an item or ***append*** an item. Appending will place the new item at the end of the log ***after*** the current, selected item.

Select the type of item you want and either press the [**Enter**] key or click on the [**OK**] button. An edit dialog customized for the particular type of item you're inserting will be displayed. For more information on each of the edit display types, see the section on Working with Edit Dialogs.

Fill in the appropriate fields in the insert dialog and click on [**OK**] to complete the insertion. Your data entry will be validated and you'll be prompted if you have missing information or incorrect information.

Editing a Log Item

To edit, press the [**F3**] key. You can also select **Edit Log Item** from the main menu or the log's pop-up menu. An edit dialog will appear, customized for the type of item you are editing.

Change the appropriate fields and click on [**OK**] to complete the edit. Your edits will be validated and you'll be prompted if you have missing information or incorrect information.

Hint

When editing Log Notes, Blank Lines, Directives and Program Titles, the Log Time of the item must fall between the previous non-spot time and the next non-spot time on the log.

Moving a Log Item

Audio items (carts), can be moved from one location to another on the log by dragging and dropping the item. [**Left-Click**] and hold the mouse button down on an audio item, then move the mouse pointer to the location where you wish to place the item and release the mouse button. The item will be moved from its original location to the new location. If, during the drag process, you drag above the top visible item or bottom visible item on the log, the log will "scroll" in the appropriate direction. Moving the mouse back into the visible items area of the log will stop the scrolling and you can then drop the item to its new location. If you decide not to drop the item, meaning you want to cancel the move, drag the item completely out of the visible items area of the log and release the mouse button. The item will not be moved.

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XStudio allows **ONLY** audio items to be moved. All other non-audio items (program titles, directives, etc.) must either be edited to change the item time or deleted and re-inserted at the appropriate time.

Deleting a Log Item

To delete an item, press the [**Del**] key or select **Delete Log Item** from either the main menu or pop-up menu. You'll be asked to confirm that you really want to delete the item. If you answer "Yes", the item is deleted from the log. Answering "No" cancels the deletion.

Adding, editing, deleting and moving carts around on the log do not affect the original log on hard disk. The changes you've made take effect only when you save the log. XStudio **does** use the displayed log for playback, though, whether or not changes made to the log are saved to disk. Behind the scenes, XStudio also takes a "snapshot" of the log at periodic intervals so that even if a log is modified and not saved, a record is kept of what the log looked like when it was performed.

Finding the Next Open Avail

Press the [**F8**] key to jump to the next open avail - the next available position on the log to insert an audio item (cart). Pressing the [**Shift-F8**] keys will jump to the previous open avail.

Jumping to the Next Directive

Press the [**F4**] key to jump to the next directive item on the log. Pressing the [**Shift-F4**] keys will jump to the previous directive.

Searching the Log

Press the [**F11**] key to display a log search dialog. You can search for a cart number or search the description. Once a search has been performed, you can search again by pressing the [**F12**] key. The search again will start from the last successful search position on the log, enabling you to search the entire log by repeatedly pressing the [**F12**] key. The log search features can also be accessed from the Edit menu. The search mechanism will find the search text you've entered anywhere in the cart number or description. For instance, you could search for "john" in the description field and "Elton John", "Rob Johnson" and "John-Boy" will be found. The same is true of searching cart numbers, although if you enter a 4-digit cart number, the match will have to be exact as there are only 4 digits in the cart number. For additional information, see the topic Searching a Log.

Hourly Totals (Jump to Time)

The left side of the main display lists the 24 hours in a log, along with the scheduled audio content length for each hour. If an inventory is used with a given station, the hourly totals will be based on the inventory, using the Aux Mark time of each cart on the log. If a cart does not exist in the inventory, the log length value is used in the total. If no inventory is used, hourly totals are calculated entirely on the log length values of the carts on the log.

The size of the text that displays the hour number and the total for the hour can be increased or decreased for readability by using a pop-up menu. [**Right-Click**] on the Hour Totals list and either increase or decrease the font size of the text.

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> **Hint** You can use the "**splitter bar**" between the Hourly Totals list and the log display to widen the list so you can see the entire line of text if you increase the text size.

The hourly totals list also serves as a method of jumping to a particular hour on the log. [**Double-Click**] on any one of the hours to jump to the beginning of the selected hour on the log. Selecting an hour and pressing the [**Enter**] key can also be used to jump to the selected hour.

> **Hint** You can jump to a specific time on the log by pressing the [**F2**] key. You'll be prompted for the time to jump to. See the reference section on Keyboard Shortcuts for a complete list of keyboard shortcuts you can use.

Inventory

The bottom-right section of the main log editing window is the inventory list, if used. You can sort, filter and place carts from the inventory on the log (using drag and drop operations). For more details, see the section on Using the Inventory.

> **Hint** You can increase or decrease the size of the inventory display (it affects the log display, too) by dragging the "splitter bar" located between the log display and the inventory display. Float your mouse over the display until you see the standard resize cursor, then [**Left-Click**] and drag the splitter up or down to get the size you want. XStudio "remembers" this setting next time you start the program.

4.4.2.1 Working with Edit Dialogs

The type of information you need to edit varies with each log record type, and, to make your task easier, there is a customized edit dialog for each. While each record type varies in information, there are some consistent types of information that will be entered. Each of these information types is handled consistently among the edit dialogs. Many of the edit fields help you speed the process by either presenting a list of choices or making it easier to enter information by interpreting what you mean. The first part of this section provides information on various field types and hints on using them effectively. The latter parts include information specific to a particular log record type.

> **Hint** When you are working with a log and wish to edit an item, press the [**F3**] key to automatically bring up the appropriate edit dialog. See the Reference section for a complete list of keyboard shortcuts in edit dialogs.

Insert Log Item Dialog

When inserting a new log item, a dialog is displayed providing the means to select the type of log item you wish to insert.

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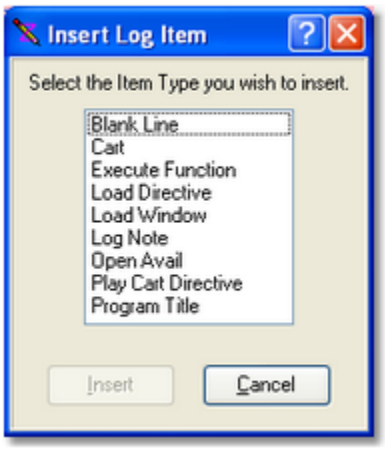

Based on the selected type, a custom dialog specific to the log item type is displayed for data entry.

Navigating Edit Dialogs

You can move through the fields displayed in an edit dialog by pressing the [**Tab**] or [**Enter**] key. Either will advance you to the next field or button in the dialog. [**Shift-Tab**] moves backward through the fields and buttons. Directly select a field for editing using your mouse with [**Left-Click**].

Most buttons have "accelerator" keys - press and hold the [**Alt**] key, then press the letter that's underlined on the button. This will have the effect of pressing or clicking on the button.

4.4.2.1.1 Functionality Common to All Edit Dialogs

Some log records require a log time entry, some require a program or spot length. Some require a log Type Code or Directive Type. Where possible, entry of this information is made easier with special edit controls.

Time Fields

Time fields require a valid time be entered. The time entry fields in XStudio allow you to take some short cuts in data entry.

For instance, if you want to enter a time of "***3:00 PM***", you can simply type "***3p***" and [**Tab**] to the next field. The time will be correctly listed as "3:00 PM".

To enter a time of "***3:15 PM***", you can type "***3.15p***" or "***15.15***". Notice that you don't have to use a colon (**:**) in entry - a period will work just as well. For minute values like "***:03***", you can enter "***.3***" (no leading zero required).

Log times are always expressed as hours and minutes with no seconds value, adhering to the requirements of a log for DCS or Maestro.

> **Hint** Times entered without an "AM" or "PM", if entered in 12-hour format, will default to "AM".

Length Fields

Length fields are those used for the length of an audio cart, the duration of a program, and the length of a directive. These are not really clock times, but are expressed as hours, minutes and seconds of

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length. The edit dialogs make some assumptions about typical lengths you might enter.

For instance, if you enter "***10***" in a length field, the result will be "***0 hours, 10 minutes, 0 seconds***".

If you enter "***100***", the result will be "***1 hour, 40 minutes, 0 seconds***".

To enter a value of 30 seconds, type "***0.0.30***".

The maximum allowed time for a length field is 16 hours, 39 minutes, 59 seconds, which adheres to the maximum logged length for XStudio.

The log display shows lengths as **mmm:ss** (up to 999 minutes, 59 seconds). These numbers are translated to hours, minutes, seconds in the edit dialog, then translated from standard hours, minutes, seconds to **mmm:ss** on the log display.

Cart Number Fields

Cart numbers are always four (4) characters in length and may include the following characters only: A..Z, 0..9, {, }, !, #, %, ^, @, =, +. Note that the last six (6) of the allowed characters are ***macro characters***, which are translated at run-time by the on-air audio delivery system.

Supported Cart Number Macro Characters

Macro	***Usage***
##	Current Voice Number (2-character string) Whenever these characters are encountered in a cart number, they are replaced by the current global Voice Number value. ***Note:*** You must always use two characters for defining a voice number and always use the ## (pound sign, pound sign) designation when entering the Current Voice Number macro.
%	Current Day of Week (1=Monday .. 7=Sunday) This character is replaced by the numeric value for the current day of the week.
^	Current Hour (12-hour format) Hours 1 through 9 = 1..9, 10 = A, 11 = B, 12 = C ***Note:*** Because this is a 12-hour format, the current hour value used when substituting for this macro character can occur twice during the day. For instance the 10 AM and 10 PM hours will return the same value - "A".
@	Nearest Hour (12-hour format) If current minute of the hour >= 30, then the returned hour value is incremented by 1. ***Note:*** Because this is a 12-hour format, the current hour value used when substituting for this macro character can occur twice during the day. For instance the 10 AM and 10 PM hours will return the same value - "A".

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Macro	Usage
=	Current Hour (24-hour format) Hours 0 (midnight) through 9 = 0..9, 10 = A, 11 = B, 12 (noon) = C, 13 (1 PM) = D through 23 (11 PM) = N Using this macro character format, there are no duplicates throughout the day.
+	Nearest Hour (24-hour format) If current minute of the hour >= 30, then the returned hour value is incremented by 1. Hours 0 (midnight) through 9 = 0..9, 10 = A, 11 = B, 12 (noon) = C, 13 (1 PM) = D through 23 (11 PM) = N Using this macro character format, there are no duplicates throughout the day.

Day of Week Values

The day of week macro character returns a numeric value, based on the current day of the week. Values returned are shown in this table.

Day	Value
Monday	1
Tuesday	2
Wednesday	3
Thursday	4
Friday	5
Saturday	6
Sunday	7

Hour of Day Values

Hour of Day macro characters will return different one-character values, depending on the specific macro character used. The main differences occur between any 12-hour format and any 24-hour format. Values returned by each format type are listed in this table.

Hour of Day	12-Hour Format	24-Hour Format
Midnight	C	0
1 AM	1	1
2 AM	2	2
3 AM	3	3
4 AM	4	4

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Hour of Day	*12-Hour Format*	*24-Hour Format*
5 AM	5	5
6 AM	6	6
7 AM	7	7
8 AM	8	8
9 AM	9	9
10 AM	A	A
11 AM	B	B
Noon	C	C
1 PM	1	D
2 PM	2	E
3 PM	3	F
4 PM	4	G
5 PM	5	H
6 PM	6	I
7 PM	7	J
8 PM	8	K
9 PM	9	L
10 PM	A	M
11 PM	B	N

Type Code Fields

Type Code fields use a dropdown list to select type codes. You can also begin typing and the list will show the closest match. The lists are presented as full words to enhance readability. When working with a dropdown list, you can display the list by either clicking on the dropdown button or by using the keystroke [**Alt-DnArrow**].

Most type code lists are fixed, meaning the user cannot change existing codes or enter new codes. The spot (audio item) Commercial Type is an exception - you can enter codes that do not appear on the list.

Directive Type Fields

Directive Type fields use a dropdown list to select a directive type. Also, typing a directive type will show the closest match. When working with a dropdown list, you can display the list by either clicking on the dropdown button or by using the keystroke [**Alt-DnArrow**].

Directive selection fields will also place a default value in the Description field. If you are inserting a new Directive on the log and select a "**Time Approximate Load Play**" directive, the Description field will be filled in with "**~ Load Play**". If you select a "**Cast-Off Load Play**" directive, the Description field

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will be filled in with "**$ Load Play**".

Automatic insertion of default description text is done ***only if the Description field is blank*** on opening the dialog. If you are editing a Directive and change the directive type, the default text will not be automatically inserted to replace existing text.

Copy and Paste Text

For fields that contain text, you can copy and paste text using standard Windows keystrokes. Select text and use [**Ctrl-C**] to copy the text to the clipboard, use [**Ctrl-V**] to paste the text from the clipboard into a field. Most fields also support the standard mouse [**Right-Click**] on the field to present menu options to copy, cut, paste and delete field contents.

Confirming or Canceling Edits

Once you have edited a new or existing log item, clicking on the [**OK**] button will confirm the changes. To cancel the edits, click on the [**Cancel**] button. You can also press [**Esc**] or click on the edit dialog's close icon (**X**) to cancel an edit.

When you confirm your changes, the information you've entered is validated. Fields that are required or have special requirements are checked. If there's something wrong with your edits, you'll get a message telling you what's wrong and the edit cursor is placed in the problem field. You will be unable to confirm (save) your changes until all fields that have special requirements are OK. On most dialogs, there are fields that are not required for the log to be valid and workable with XStudio. These fields can be left blank if desired.

Context Help for Edit Dialogs

Each of the edit dialogs has context help available. To use context help, click on the context help button (**?**) on the title bar, then click on the field for which you need help. You can also touch the [**F1**] key while in a field and get help for that field.

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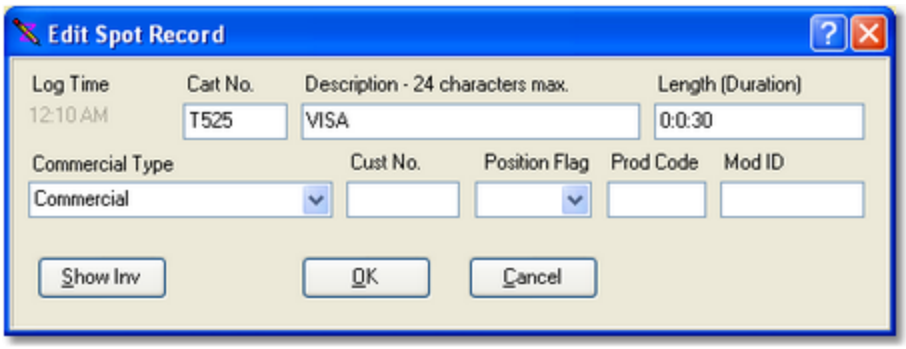
4.4.2.1.2 Blank Line Dialog

XStudio provides the ability to insert a so-called "blank" line in the log. In reality, the blank line is nothing more than a time place holder. It is generally used as a visual aid in log layout. XStudio ignores blank lines in general and does not treat them as a separator in satellite breaks, for instance.

The only field to fill out in a Blank Line record is the time. The time entered must fall between the previous not-spot time and the next non-spot time on the log.

4.4.2.1.3 Spot (Cart) Dialog

It's likely that a majority of your editing will involve adding or editing cart records (a.k.a. spot records). When opened, the display format is similar to the example shown.



You can edit each field individually, or, if using an inventory for the log, simply fill in the cart number and press the [**Enter**] key. If the cart number you entered exists in the inventory, the Description and Length fields will be filled in automatically with the inventory information. You can also select a cart from the inventory list - click on the [**Show Inv**] button to display the inventory list (see the expanded spot dialog below) and [**Double-Click**] on the cart you wish to use.

When you have completed editing and press the [**OK**] button, your entries are validated and, if incorrect or missing, you get a warning message and the cursor is placed in the field that needs to be corrected.

Spot (Cart) Dialog Field Information

Items with a check mark in the **REQ** column require user entry, while unchecked items have default values which can optionally be changed. Items mark **RO** are read-only and not editable.

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Field	REQ	Usage
Log Time	RO	Displays base time for the log item.
Cart Number	✓	The cart number of the log item. This entry can include valid macro characters. When the dialog is closed, the contents of this field are checked to be sure only valid cart number characters have been entered.
Description	✓	The text that will appear on the XStudio display for this log item.
Length		The length of audio file (cart) as hours, minutes, seconds.
Commercial Type		The Type Code for this item. You can select one of the pre-defined types from the drop-down list or enter up to 4 characters to define your own type code.
		If the item is music cart, this field can be used to enter the song's intro time. The intro time can be entered as a one or two-digit number. The value can be preceded by a colon (**:**) if desired.
Customer Number		The customer number. Generally will appear only for items associated with a broadcast spot order and identifies the traffic system customer number associated with the cart.
Position Flag		Sets anchor position of the item in a cluster. Default is blank - the field is empty.
Product Code		The item product code. Generally will appear only on logs that have items on them that were exported from a commercial traffic system.
Mod ID	RO	***< Not Used >***

To create an "open" or "blank" avail, enter a cart number of "****" (4 asterisks) and leave all other fields blank. You can create an open avail more easily by selecting the item Open Avail from the Insert Log Item dialog.

You can expand the spot dialog display to show the inventory (if enabled) and select carts (spots) from the inventory list. For more information on using the inventory, see the section on Using the Inventory.

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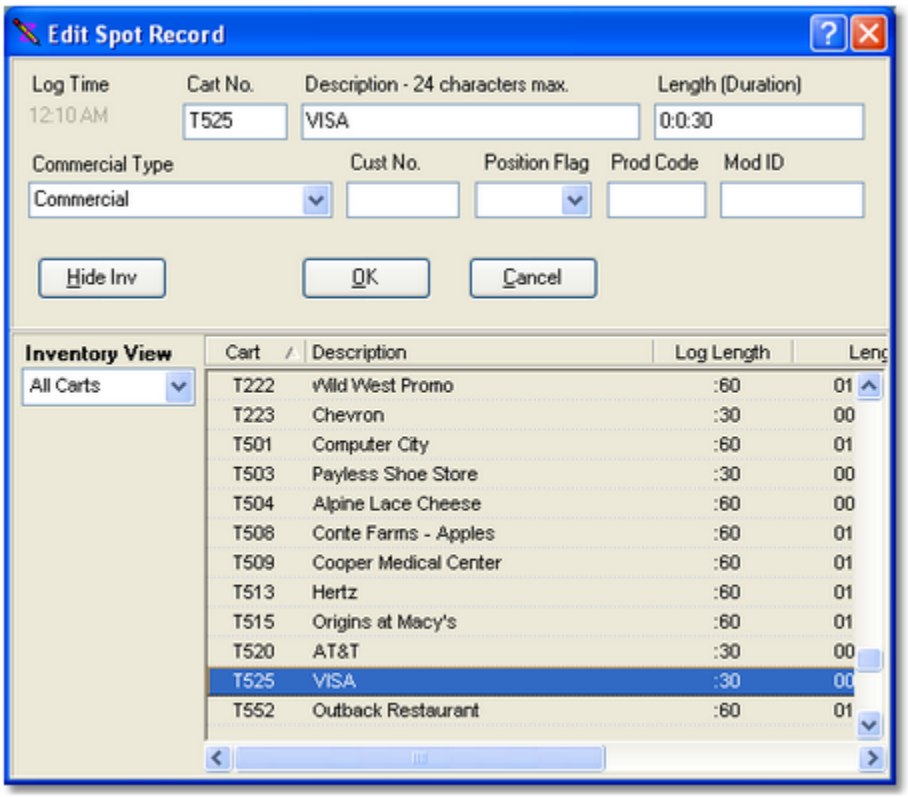
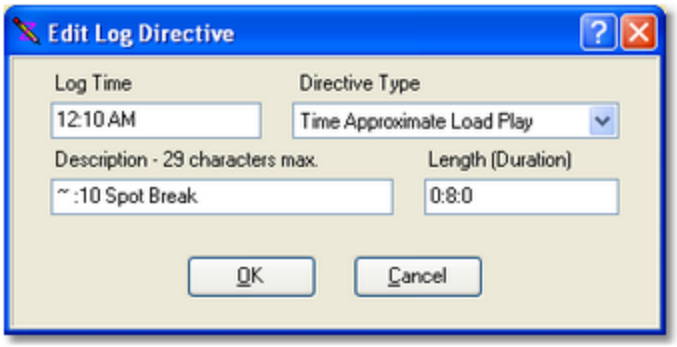


When the inventory list is displayed, you can [**Double-Click**] on an inventory item to fill in all applicable fields in the spot record. You can also drag an item from the inventory list and drop it on the edit panel to fill in all applicable fields.

4.4.2.1.4 Load Directive Dialog

Load directives are key components to satellite or full local automation in XStudio. It is important that you understand the use and meaning of directives. If you have questions about the proper use of directives, or need details on the specifics of using a particular directive, consult the topic on Log Directives.



When you have completed editing and press the [**OK**] button, your entries are validated and, if incorrect or missing, you get a warning message and the cursor is placed in the field that needs to be corrected.

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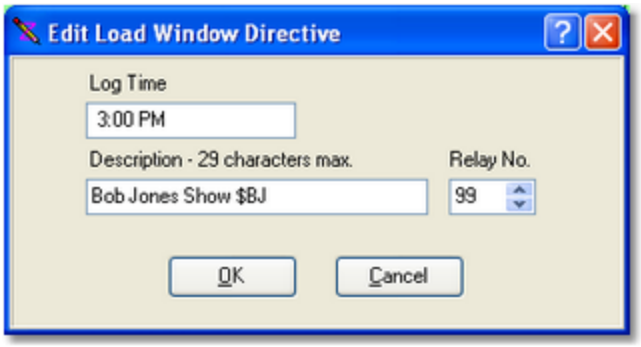
Load Directive Dialog Field Information

Items with a check mark in the **REQ** column require user entry, while unchecked items have default values which can optionally be changed.

Field	REQ	Usage
Log Time	✓	Execution time for the directive. The time entered must fall between the previous not-spot time and the next non-spot time on the log.
Directive Type	✓	The type of directive for this log item. Select the directive type from the drop-down list. See the topic on Log Directives for details on directive types and their usage.
Description	✓	The text that will appear on the XStudio display for this log item.
Length		The execution length of the directive, as hours, minutes, seconds.

4.4.2.1.5 Load Window/Execute Function Dialog

This dialog is displayed when you select either a Load Window directive or an Execute Function directive. The information required for each of these directives is essentially the same. The key value is the Relay Number, which identifies which function or action to execute by number. The difference for the Load Window directive is that it requires special text in the Description field. If you are unfamiliar with the requirements of Load Windows directives, see the Log Directive topic for details.



When you have completed editing and press the [**OK**] button, your entries are validated and, if incorrect or missing, you get a warning message and the cursor is placed in the field that needs to be corrected.

Load Window / Execute Function Field Information

Items with a check mark in the **REQ** column require user entry, while unchecked items have default values which can optionally be changed.

Field	REQ	Usage
Log Time	✓	Execution time for the directive. The time entered must fall between the previous not-spot time and the next non-spot time on the log.
Description	✓	The text that will appear on the DCS, Maestro or XStudio display for this log item.

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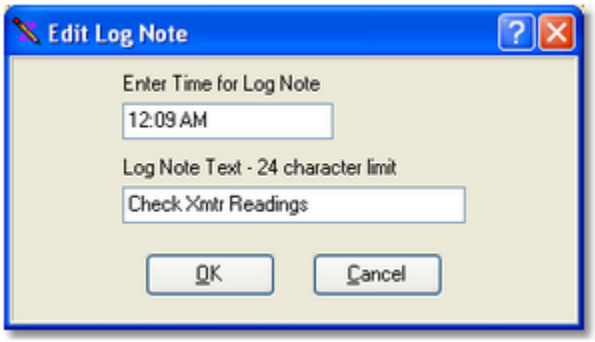
Field	REQ	Usage
Relay Number	✓	For an Execute Function, the Action ID number for the Action, taken from the XStudio automation configuration. For a Load Window Set Voice, enter **99**. Valid relay numbers are 1-9999.

4.4.2.1.6 Log Note Dialog

Log Notes are informational in nature and XStudio ignores them. XStudio does not treat them as a separator in satellite breaks, for instance.



When you have completed editing and press the [**OK**] button, your entries are validated and, if incorrect or missing, you get a warning message and the cursor is placed in the field that needs to be corrected.

Log Note Field Information

Items with a check mark in the **REQ** column require user entry, while unchecked items have default values which can optionally be changed.

Field	REQ	Usage
Log Time	✓	The time at which the note appears on the log. The time entered must fall between the previous not-spot time and the next non-spot time on the log.
Description	✓	The informational text that will appear on the log display for this item.

4.4.2.1.7 Open Avail Insert

An "Open Avail" is simply a spot record with asterisks (****) as the cart number. If you choose to insert an Open Avail in the log from the insert item list, no dialog is presented as there's no information for you to edit. An open avail on the log appears as a standard spot (cart) record with the 4 asterisks as the cart number.

To edit an Open Avail, press the [**F3**] key and the standard Spot Dialog will be presented. You can search the for open avails using the [**F8**] and [**Shift-F8**] keystrokes. See the Reference section on keyboard shortcuts for a list of available shortcuts when working with a log.

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4.4.2.1.8 Play Cart Dialog

The Play Cart Directive Dialog is very similar to the Spot Dialog in appearance and functionality, with the exception that the Play Cart Directive needs a valid log time. You can use the same editing techniques for this dialog as you do with the Spot Dialog.

When you have completed editing and press the [**OK**] button, your entries are validated and, if incorrect or missing, you get a warning message and the cursor is placed in the field that needs to be corrected.

As with the Spot Dialog, you can expand the Play Cart Directive Dialog to display the cart inventory. See the expanded spot dialog for an example of its appearance.

Play Cart Dialog Field Information

Items with a check mark in the **REQ** column require user entry, while unchecked items have default values which can optionally be changed.

Field	REQ	Usage
Log Time	✓	Displays execution time for the directive. The time entered must fall between the previous not-spot time and the next non-spot time on the log.
Cart Number	✓	The cart number of the log item. This entry can include valid macro characters. When the dialog is closed, the contents of this field are checked to be sure only valid cart number characters have been entered.
Description	✓	The text that will appear on the DCS, Maestro or XStudio display for this log item.
Length		The length of audio file (cart) as hours, minutes, seconds.
Commercial Type		The Type Code for this item. You can select one of the pre-defined types from the drop-down list or enter up to 4 characters to define your own type code.
Customer Number		The customer number. Generally will appear only for items associated with a broadcast spot order and identifies the traffic system customer number associated with the cart.
Position Flag		Sets anchor position of the item in a cluster. Default is blank - the field is empty.
Product Code		The item product code. Generally will appear only on logs that have

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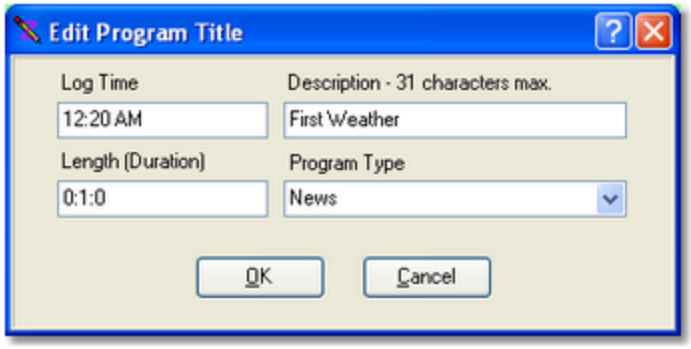
Field	REQ	Usage
		items on them that were exported from a commercial traffic system.

4.4.2.1.9 Program Title Dialog

Program Titles are used primarily to communicate, via the log, program elements to an operator of XStudio. Usage of Program Titles is most common for live-assist hours of the broadcast day.



When you have completed editing and press the [**OK**] button, your entries are validated and, if incorrect or missing, you get a warning message and the cursor is placed in the field that needs to be corrected.

Program Title Field Information

Items with a check mark in the **REQ** column require user entry, while unchecked items have default values which can optionally be changed.

Field	REQ	Usage
Log Time	✓	Start time for the program. The time entered must fall between the previous not-spot time and the next non-spot time on the log.
Description	✓	The text that will appear on the XStudio, DCS, or Maestro display for this log item.
Length		The execution length of the program, as hours, minutes, seconds.
Type Code		The Program Type Code for this item. You can select one of the pre-defined types from the drop-down list or enter up to 4 characters to define your own type code. Manually entered type codes can exceed 4 characters, but only the first four characters are saved to the log.

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4.4.3 Saving a Log

Save a log by selecting **File | Save Log**. You can also use the toolbar button for saving a log. If the log already exists in the save location, you'll be prompted and offered the opportunity to either overwrite the existing log or cancel the save operation.

A check will be made, prior to saving, to see if the log file might have been changed by someone else while you were editing. If so, a prompt will appear advising you that the log on disk has changed from when you opened it. You can either continue with the save or cancel saving.

> **Hint** You can also "**Save a Log As..**" When this menu item is selected, a save log dialog appears, similar to the display you see when opening a log. You can even select an entirely different station and save the log!
>
> A log can also be saved as an XStudio Emergency Log. See the topic on Emergency Logs for more information.

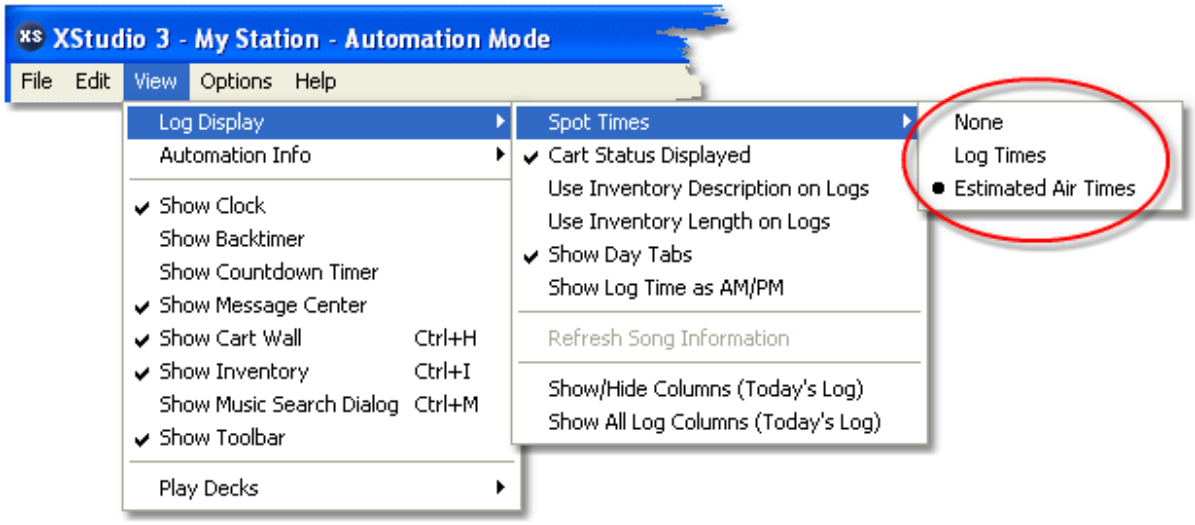
4.4.4 Changing Log Appearance

You can change certain aspects of how log items are displayed from the **View** menu. XStudio offers multiple ways to display cart (audio item) times, and provides the means to highlight carts (audio items) that are either not valid for the log date or missing from the audio inventory. In addition, the text and background color of all log items can be controlled, as can the log font style and size.

> **Hint** Settings modified from the **View** menu take effect immediately when changed and are "remembered" by XStudio, so the next time you launch the program, your settings are restored.

Display Spot Times

You can choose how to display spot times - the default is not to display them at all - by selecting the menu item **View | Log Display | Spot Times** and then selecting how you want the spot times displayed, as shown.



Select the option "**Log Times**" to display the spot (audio item) times in the traditional format that DCS

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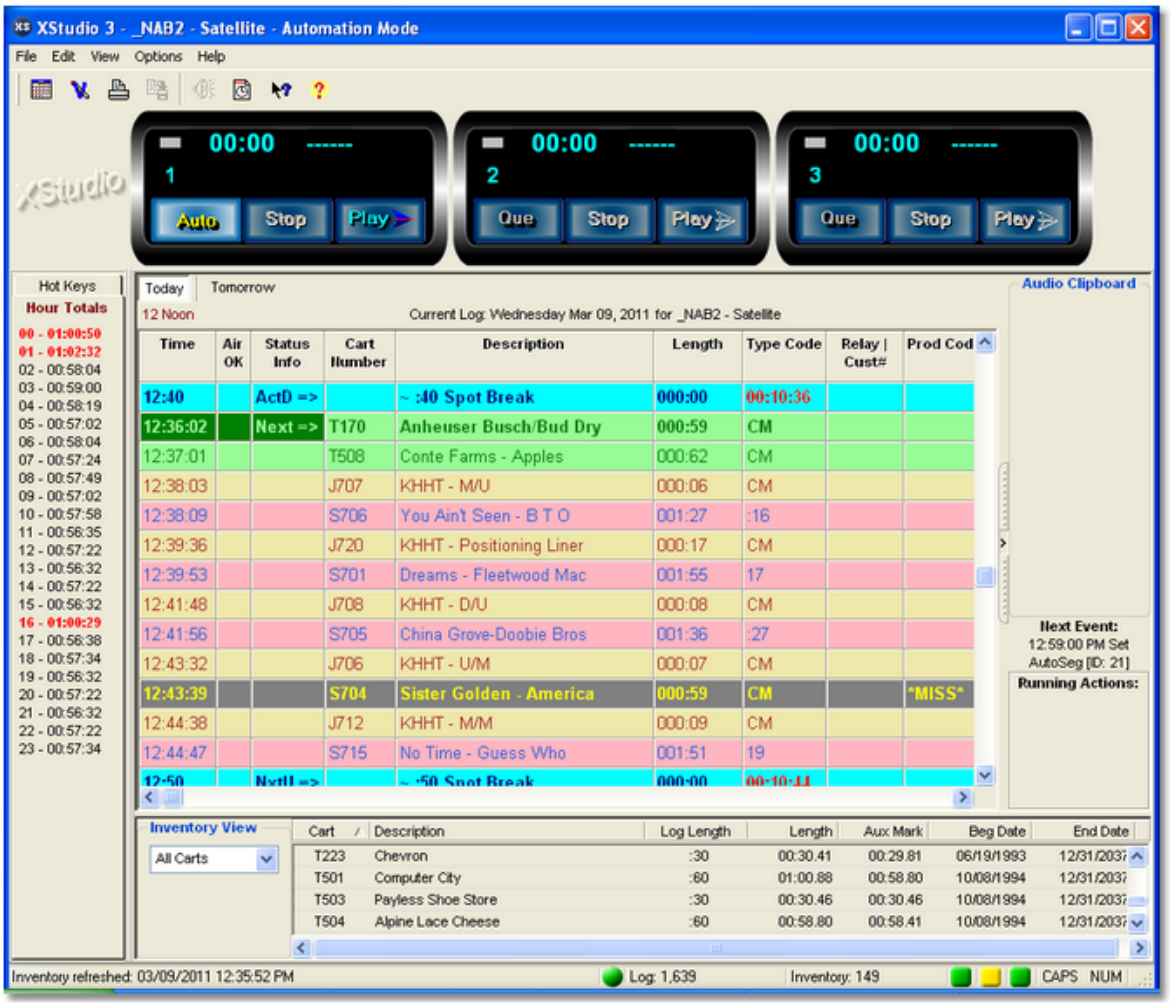
and Maestro log editors use, with each item incrementing one second from the previous item.

Select the option "**Estimated Air Times**' to display spot (audio item) times as an estimate of when the item would be played in a given hour. The estimated play time is hour-based, meaning that the first item in a given hour is estimated to play at the straight-up of the hour and each subsequent item is offset by the previous items' play length, either based on the log's Length field or, if used, the audio inventory's Aux Mark for the cart. This option is useful for stations running local automation.

To suppress the display of log times for audio items, select the option "**None**".


XStudio 3 - _NAB2 - Satellite - Automation Mode
File Edit View Options Help
00:00
1
Auto Stop Play
00:00
2
Que Stop Play
00:00
3
Que Stop Play
Hot Keys
Hour Totals
Today Tomorrow
12 Noon
Current Log: Wednesday Mar 09, 2011 for _NAB2 - Satellite
Audio Clipboard
Time Air OK Status Info Cart Number Description Length Type Code Relay | Cust# Prod Cod
12:40 ActD => ~ :40 Spot Break 000:00 00:10:36
12:36:02 Next => T170 Anheuser Busch/Bud Dry 000:59 CM
12:37:01 T508 Conte Farms - Apples 000:62 CM
12:38:03 J707 KHHT - M/U 000:06 CM
12:38:09 S706 You Ain't Seen - B T O 001:27 :16
12:39:36 J720 KHHT - Positioning Liner 000:17 CM
12:39:53 S701 Dreams - Fleetwood Mac 001:55 17
12:41:48 J708 KHHT - D/U 000:08 CM
12:41:56 S705 China Grove-Doobie Bros 001:36 :27
12:43:32 J706 KHHT - U/M 000:07 CM
12:43:39 S704 Sister Golden - America 000:59 CM *MISS*
12:44:38 J712 KHHT - M/M 000:09 CM
12:44:47 S715 No Time - Guess Who 001:51 19
Next Event:
12:59:00 PM Set
AutoSeg [ID: 21]
Running Actions:
Inventory View
All Carts
Cart Description Log Length Length Aux Mark Beg Date End Date
T223 Chevron :30 00:30.41 00:29.81 06/19/1993 12/31/2037
T501 Computer City :60 01:00.88 00:58.80 10/08/1994 12/31/2037
T503 Payless Shoe Store :30 00:30.46 00:30.46 10/08/1994 12/31/2037
T504 Alpine Lace Cheese :60 00:58.80 00:58.41 10/08/1994 12/31/2037
Inventory refreshed: 03/09/2011 12:35:52 PM
Log: 1,639
Inventory: 149
CAPS NUM

Estimated Air Times Displayed

Highlight Problem Carts

You can display "problem carts" in a different color scheme (the default is not to display "problem cart" information) if desired. Select the menu item **View | Log Display | Cart Status Display** to toggle problem cart highlighting on and off.

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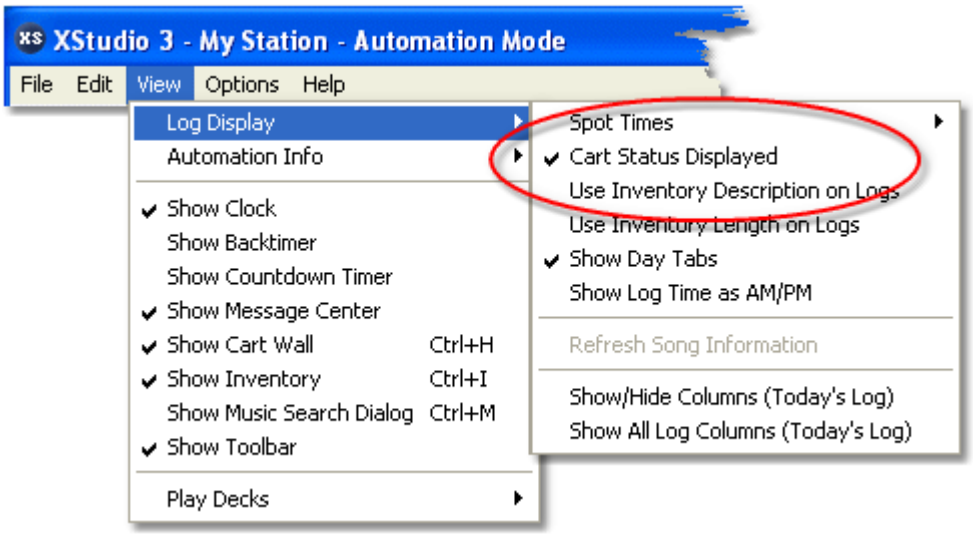
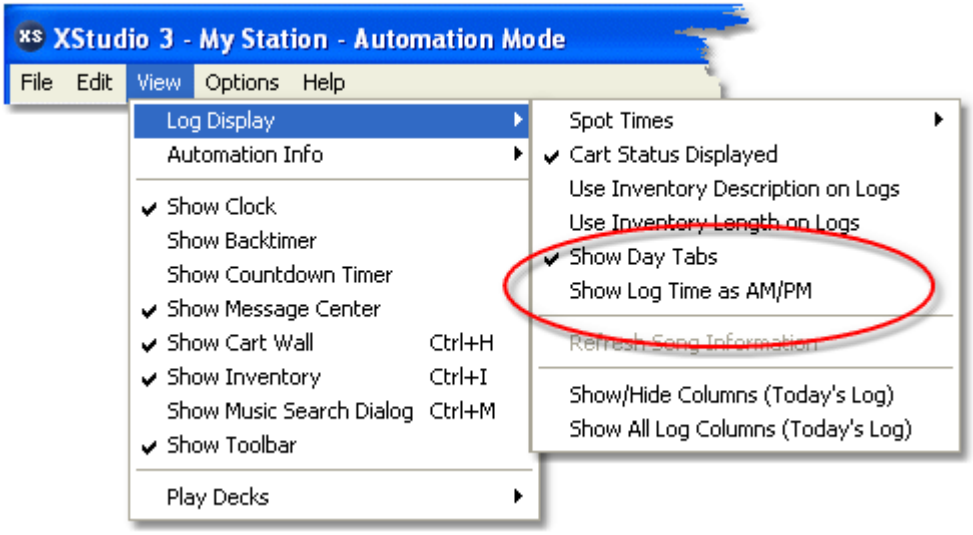


See the topic on Log Colors for more information on setting the specific colors and properties of audio items that are either out-of-date for the log date or missing from the audio inventory.

Show Log Times as AM/PM

You can change the time display of log items from military time (the default) to AM/PM times. Select the menu item **View | Log Display | Show Log Time as AM/PM** to toggle log item times between military and AM/PM display.



Changing how log item times are displayed does not affect the underlying log data, which will be saved in military time format. Displaying times as AM/PM time is for user convenience.

Cart Category Colorization

You can use the background and text colors associated with Cart Filters (Cart Categories) to make it easier to quickly identify different audio item groups on the log. The example log shown above uses

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different color schemes for commercials, jingles, music, and voice tracks to make them readily identifiable at a glance. See the topic on Cart Categories for more information on defining colors associated with various groups of audio items.

Customizing Log Column Width, Location and Visibility

The XStudio log is displayed as a group of columns of information. The size, order and visibility of each column can be controlled to produce a display customized to your preferences. The following table describes each of the columns of information available for display. Columns that are displayed to the end-user as a default are identified, should you make changes and then decide you'd like to revert back to the default display organization. If you have configured XStudio to load and display the next-day log, column settings for it can also be controlled separately.

Column	***Def***	***Description***
Time	✓	Displays the logged time of the log item. For audio items, the format of the displayed time is controlled Display Spot Times setting. ***You can modify the width of this column, but cannot move or hide the column***.
Air OK	✓	When an audio item has successfully played, a check mark appears in this column. ***You can modify the width of this column, but cannot move or hide the column***.
Status Info	✓	This column displays log status information. The "NextToPlay" and "OnAir" markers appear in this column.
Line Type		The log item line type, which identifies whether it is a Log Note, Directive, Program Title or audio item. This column is not displayed as a default.
Dir Type		If a log item is a Directive, this column displays the type of directive. It is not displayed as a default.
Cart Number	✓	The Cart Number is the audio item identifier.
Description	✓	The logged item description. The information displayed comes from either the music or traffic scheduling system, depending on the type of record, as a default.
Length	✓	The expected length (duration) of a log item. For audio items, the value is the expected playback length. For other types of log records, the value is the expected duration.
Type Code	✓	The log item type code. Types include CM (Commercial), Music, News, Educational, to name a few.
Relay | Cust#	✓	This column will contain varying kinds of information, depending on the type of log item. For commercials, it generally contains the customer number from the traffic system. If the log item is a directive that involves a relay, the relay number appears in this column.
Prod Code	✓	For commercials, this column contains the product code (or product being promoted) for the log record.
Title		If the feature is enabled and the log item is a song, the song title is displayed in this column. If the log item is not a song, the column will either be blank or will contain a

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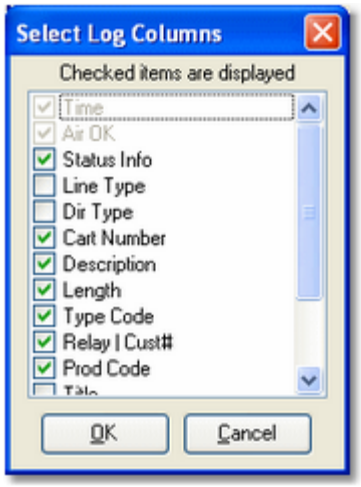
Column	Def	Description
		copy of the Description column depending on the user options that are set.
Artist		If the feature is enabled and the log item is a song, the song's artist is displayed. In all other cases, no information appears in this column.
Time Aired	✓	If an audio item on the log plays successfully, the time the item ***started*** playing appears in this column.
Rec ID	✓	XStudio automatically creates a unique record ID number when a log is opened and as the log is changed by edits or log updates. The ID number is displayed in this column.

Controlling Column Visibility

Select the menu item **View | Log Display | Show/Hide Columns** to modify which log columns are visible. A dialog appears, listing all available columns, the current order of columns (left to right) and a check box that indicates whether or not the column is currently visible.



To hide a column, uncheck it. To display a column, ensure that the item is checked.

> You can use this dialog to change the column heading, too. Select the column you wish to change and [**Right-Click**] to display a pop-up menu. Select the menu item **Edit Item Text** and enter the new column heading you wish to appear on the log.

Column visibility and the heading text, if changed, are updated immediately upon closing this dialog.

Moving a Log Column

To move a log column from one place to another, press and hold the [**Left**] mouse button down on the column heading text. Drag the column to your preferred location. Note that the ***Time*** and ***Air OK*** columns are fixed as the left-most log columns and cannot be moved.

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Resizing a Log Column

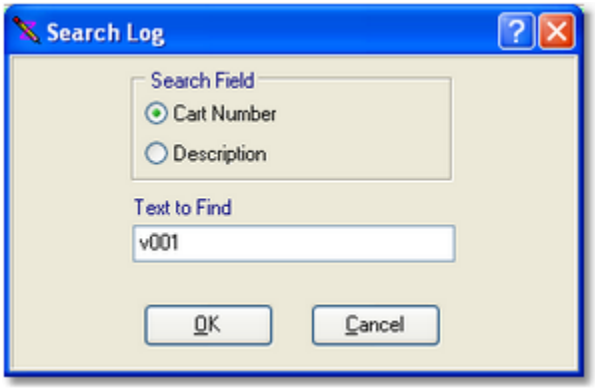
To change the width of a log column, float the mouse cursor over the column headings. When the cursor shape changes to the divider style (arrows pointing either way), press and hold the [**Left**] mouse button down. Move the mouse left or right to make the column width smaller or larger.

Saving Log Column Custom Settings

Any changes you make to log column visibility, width and location are automatically saved when you exit XStudio and restored the next time you start XStudio.

4.4.5 Searching a Log

You can search a log for either cart numbers or descriptions on the log. To perform a search, select the main display's **Edit | Find** menu item or press the [**F11**] key. A dialog similar to the one shown below will be displayed. To repeat your last search, select the main display's **Edit | Find Again** menu item or press the [**F12**] key.



Searches are case-insensitive and will find your entered search text anywhere in the selected search field.

> The search mechanism will find the search text you've entered anywhere in the cart number or description. For instance, you could search for "**john**" in the description field and "**Elton John**", "**Rob Johnson**" and "**John-Boy**" will be found. The same is true of searching cart numbers, although if you enter a 4-digit cart number, the match will have to be exact as there are only 4 digits in the cart number.

If a search is unsuccessful, a warning sound will be issued and the main display's status bar will display a message indicating the search text was not found.

XStudio saves the search field and text to find when you exit the program and restores those values the next time the program is started.

4.4.6 Copy and Paste Commercials

You can copy a spot (commercial) record on the log to a special "spot clipboard" and then subsequently paste it (insert another copy of the spot) into the log.

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> **Hint** **ONLY** spot records (carts) can be copied and pasted. Log items other than audio (spot) records require manual insertion.

To copy a spot record, select the spot on the log you wish to copy. Then, you can use the [**Ctrl-F3**] keystroke to copy the item to the spot clipboard. You can also use menu items from the main Edit menu or the log display's pop-up menu.

To paste a copied spot record, select the row on the log where you want the spot inserted. Press [**Ctrl-Ins**] to insert the spot. The record will be inserted immediately above the selected row. You can also use the main Edit menu or log display pop-up menu to paste from the spot clipboard.

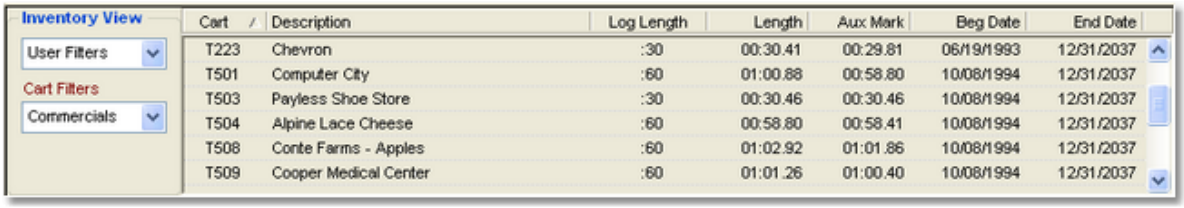
Copy and Paste is active only when the log table is the active control on the main display. Copy and paste can also be used across logs. For instance, you may have today's log open in a window, copy a spot record, then switch to another log window (say, tomorrow's log) and paste the spot into that log.

> **Hint** See the Reference section on Keyboard Shortcuts for a complete list of keyboard shortcuts you can use.

4.4.7 Using the Inventory

If you have defined an external inventory for a station or are using the default Generate and Use Local Inventory setting in Preferences, XStudio will display available inventory information. The inventory list can be used for adding items to the log, adding items to the audio clipboard, and to edit selected cart properties.

The inventory information can be sorted and/or filtered for ease of use. The same type of display is also used for cart selection when adding or editing a spot record or adding or editing a play cart directive. The inventory display will look similar to the following:



Expired carts, those that are invalid for today's date, are displayed in **red** and future-dated carts, those that are valid from some date range beyond today, are displayed in **green**.

Selecting Carts from the Inventory

You can use the inventory to insert carts on the log (on the main display) and to select carts when adding or editing a spot record or play cart directive. The selection process is slightly different, depending on whether you are working on the main display with a log or editing a single cart item in one of the pop-up dialogs.

Main Display - Inserting a Cart from the Inventory into the Log

On the main display, you can select a cart from the inventory and place it on the log. [**Left-Click**] on the cart, hold the mouse button down and drag the cart to the position on the log where you want to insert the cart. Then, drop it on the log. If the cart is invalid for the selected log date, you'll be prompted and offered the opportunity to cancel adding the cart to the log.

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Selecting a Cart in an Edit Dialog

To select a cart in one of the edit dialogs, [**Double-Click**] on the cart you wish to select, or, if you prefer using the keyboard, highlight the cart and press the [**Enter**] key. In either case, the cart number, description and length of the cart will be placed in the edit fields. You can also drag a cart from the inventory and drop it on the record display, similar to the main display drag and drop operation.

Filtering Carts

The left portion of the display is for "filtering" the inventory list. There are predefined filters for all carts, expired carts and future-dated carts. Additionally, you can create your own filters in Preferences. The use of cart filters reduces the size of the list to only those items you wish to see. You can change the filter or, if you have the User Filters view selected, change the Cart Filter at any time.

Sorting Carts

You can sort the inventory by clicking on the column header on which you wish to sort. Most, but not all, columns can be used for sorting. Clicking once on the column sorts in ascending order on the column; clicking again reverses the sort to descending order.

The following items are available on the main display only! None of the log record edit dialogs that include an inventory list have these options available.

The XStudio Inventory Pop-Up Menu

The XStudio inventory pop-up menu provides some options related to the inventory display. To access the menu, [**Right-Click**] on the displayed inventory list.

XStudio Inventory Pop-Up Menu

There are a number of options available on the inventory pop-up menu. Certain menu items are enabled or disabled, depending on whether you have a cart selected in the list.

Play Cart (Channel 1, 2, 3, 4)

If you have a cart (audio item) selected when you access the inventory pop-up menu, you can immediately play the selected cart to a particular channel (deck) by selecting the menu item for the channel on which you wish to play the cart. If the selected cart is missing or out-of-date (and Enforce Cart Dates is enabled), an advisory message is displayed.

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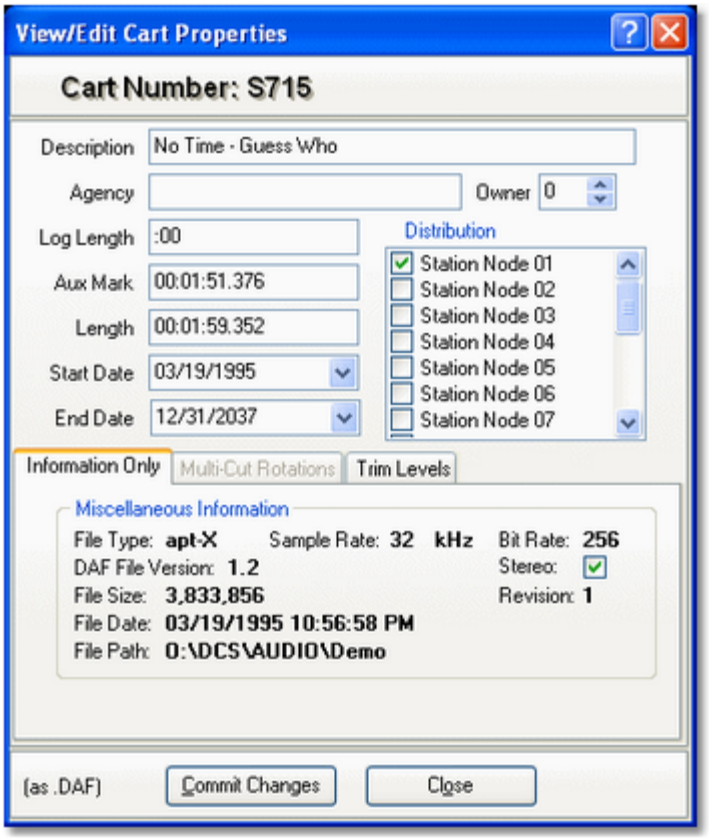
Add Cart to Clipboard

Select this menu item to place the selected cart in the audio clipboard. The item will be appended to the list of items, if any, and appear at the bottom of the list.

Edit Cart Information

XStudio allows you to edit selected cart properties when you select this menu item. An edit dialog appears, similar to the one shown.



You can edit the cart description, agency field, log length, start date, end date, AUX Mark, audio length (shorten only), distribution and gain trim.

> **Hint** Items that can be edited vary by the type of cart you are editing. Not all items are available for all types of carts.

Once you have completed your edits, click on the [**Commit**] button to save the changes. XStudio saves the revisions, which take effect immediately.

Manually Update Local Inventory

Selecting this menu item forces XStudio to re-scan the audio folder and rebuild the list of available inventory immediately. Normally, XStudio will periodically check the audio folder for changes and rebuild the inventory automatically. If the audio folder is a local drive, detection of changes to the inventory on-disk is virtually immediate. On a network drive, the check is made at regular intervals that

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are user-definable. This menu option allows you to update the inventory on-demand and is particularly useful when the audio folder is a network drive and you have the Scan Interval set to a high value.

Load Inventory

This menu option allows you to load and display an inventory file of your choosing. You are prompted to select a file name.

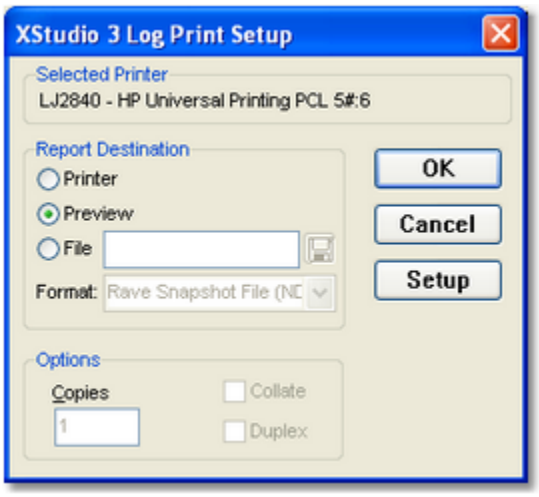
Printing a Cart List

You can print a list of carts at any time. [**Right-Click**] on the inventory display and select the menu item **Print Inventory** from the pop-up menu. You're offered the chance to select a printer, print the list or cancel printing. The printed list will be as the inventory is displayed on-screen - that is, the printed list reflects the current filter and current sorting of the inventory.

4.4.8 Printing Logs

You can print an opened log at any time. Access the print log feature by selecting the menu item **File | Print Log**, by clicking on the [**Print Log**] toolbar button, or by right-clicking your mouse over the log display and selecting the **Print Log** item.

Initially, you'll see a dialog that allows you to choose whether to preview the printed log on-screen, print directly to a printer, or save the printed output to a file. The [**Setup**] button allows you to choose the printer and change various printer settings.



If you select the **Preview** option (the default), the printed log will be generated and displayed in a preview window similar to the one shown below.

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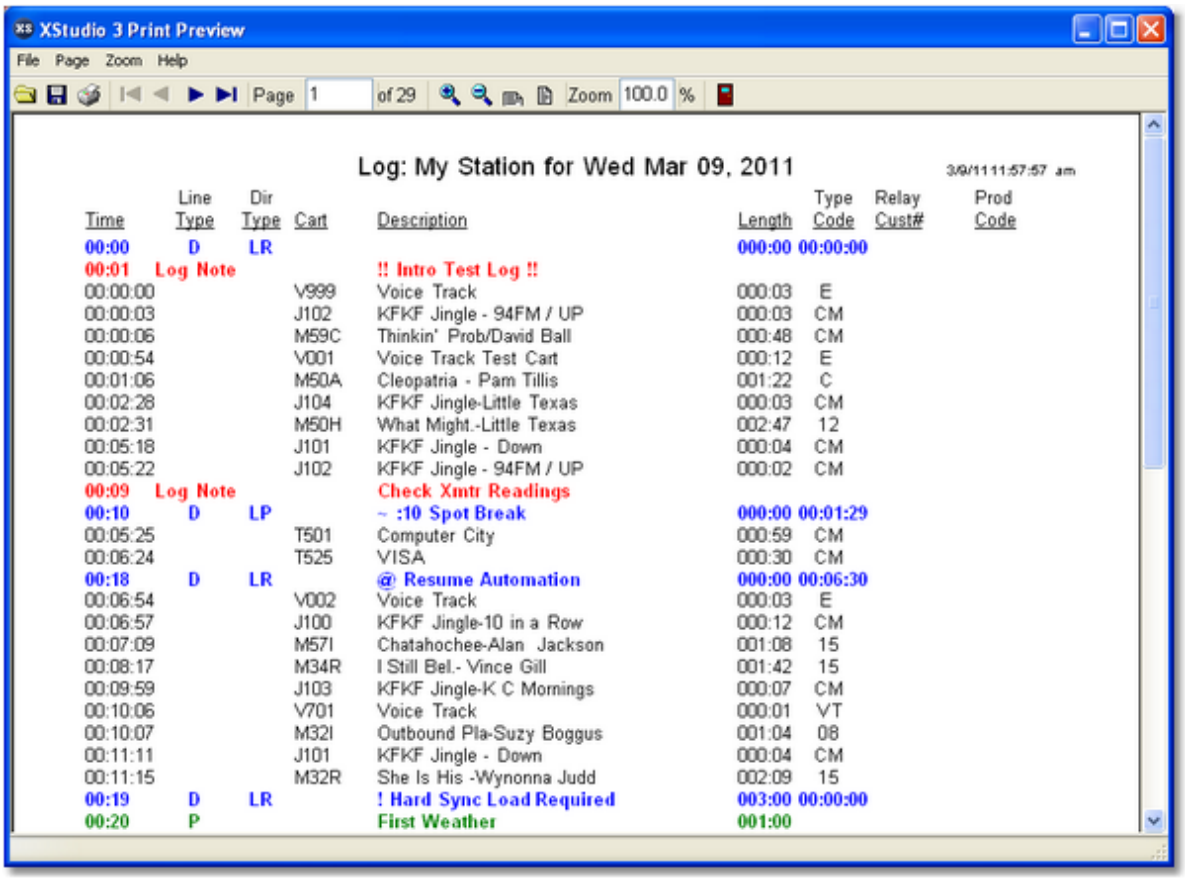
XStudio 3 Print Preview
File Page Zoom Help
Page 1 of 29 Zoom 100.0 %
Log: My Station for Wed Mar 09, 2011
3/9/11 11:57:57 am
Time Line Type Dir Type Cart Description Length Type Code Relay Cust# Prod Code
00:00 D LR !! Intro Test Log !! 000:00 00:00:00
00:01 Log Note
00:00:00 V999 Voice Track 000:03 E
00:00:03 J102 KFKF Jingle - 94FM / UP 000:03 CM
00:00:06 M59C Thinkin' Prob/David Ball 000:48 CM
00:00:54 V001 Voice Track Test Cart 000:12 E
00:01:06 M50A Cleopatria - Pam Tillis 001:22 C
00:02:28 J104 KFKF Jingle-Little Texas 000:03 CM
00:02:31 M50H What Might.-Little Texas 002:47 12
00:05:18 J101 KFKF Jingle - Down 000:04 CM
00:05:22 J102 KFKF Jingle - 94FM / UP 000:02 CM
00:09 Log Note Check Xmtr Readings
00:10 D LP ~ :10 Spot Break 000:00 00:01:29
00:05:25 T501 Computer City 000:59 CM
00:06:24 T525 VISA 000:30 CM
00:18 D LR @ Resume Automation 000:00 00:06:30
00:06:54 V002 Voice Track 000:03 E
00:06:57 J100 KFKF Jingle-10 in a Row 000:12 CM
00:07:09 M57I Chatahochee-Alan Jackson 001:08 15
00:08:17 M34R I Still Bel.- Vince Gill 001:42 15
00:09:59 J103 KFKF Jingle-K C Mornings 000:07 CM
00:10:06 V701 Voice Track 000:01 VT
00:10:07 M32I Outbound Pla-Suzy Boggus 001:04 08
00:11:11 J101 KFKF Jingle - Down 000:04 CM
00:11:15 M32R She Is His -Wynonna Judd 002:09 15
00:19 D LR ! Hard Sync Load Required 003:00 00:00:00
00:20 P First Weather 001:00

In the preview window, you can page through the log on-screen by using the forward and back toolbar buttons. You can zoom the preview in and out using the magnifying glass buttons on the toolbar. Scroll the page with the scroll bar to see the lower portions of the page. You can also scroll the page using the [**PgUp**] and [**PgDn**] keys and the [**UpArrow**] and [**DnArrow**] keys.

Send the log to a printer from the preview by clicking on the printer button on the toolbar. A print dialog will be displayed that allows you to change the printer, if desired, and to select a range of pages to print, if desired.

> Hint You can choose to print only the page or pages you wish from the print button in the preview display.

If you elect to print the log directly without previewing, it will be generated and sent directly to the selected printer.

> The print routines will fail if the PC you are using has no printers defined or if the default printer is unavailable. See the section in the Troubleshooting topic on basic troubleshooting for error messages and solutions.

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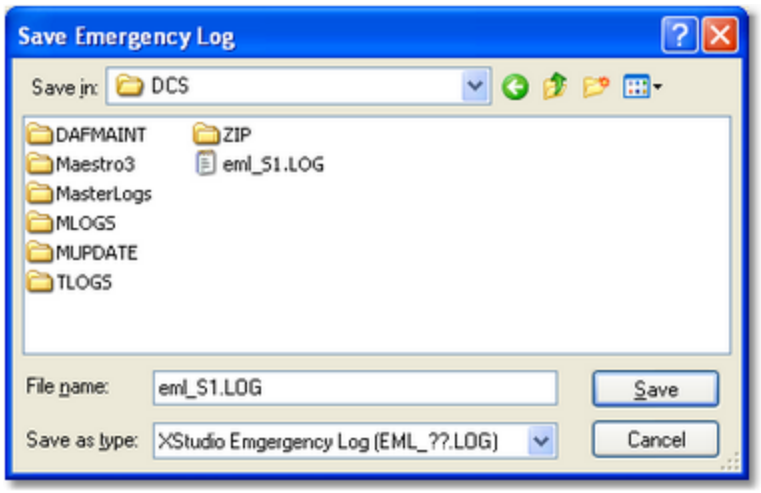
4.4.9 Emergency Logs

An emergency log is nothing more than an undated standard log with a special name, located in the same folder as a station's standard dated logs.

To create an emergency log in XStudio, edit any log so that it contains the program content you wish to use in case of an emergency. The log can be any length up to 24 hours. You might, for instance, create a log that contains only three or four hours of content - or create an entire day's worth of content to be used in an emergency.

When you are satisfied with the content, select the menu item **File | Save As Emergency Log**. A dialog appears, containing the suggested name for the emergency log.



You can save the emergency log anywhere you wish, but for it to be used by XStudio for a particular station, it must be located in that station's log folder.

The standard naming convention for an emergency log for use with XStudio is in the form **EML_*xx*.log**, where the "***xx***" is the target station's Station Number. Typically, the Station Number would be something like "**S1**", although XStudio supports any 2-character combination as a Station Number. You can verify the Station Number by looking at the XStudio preference settings.

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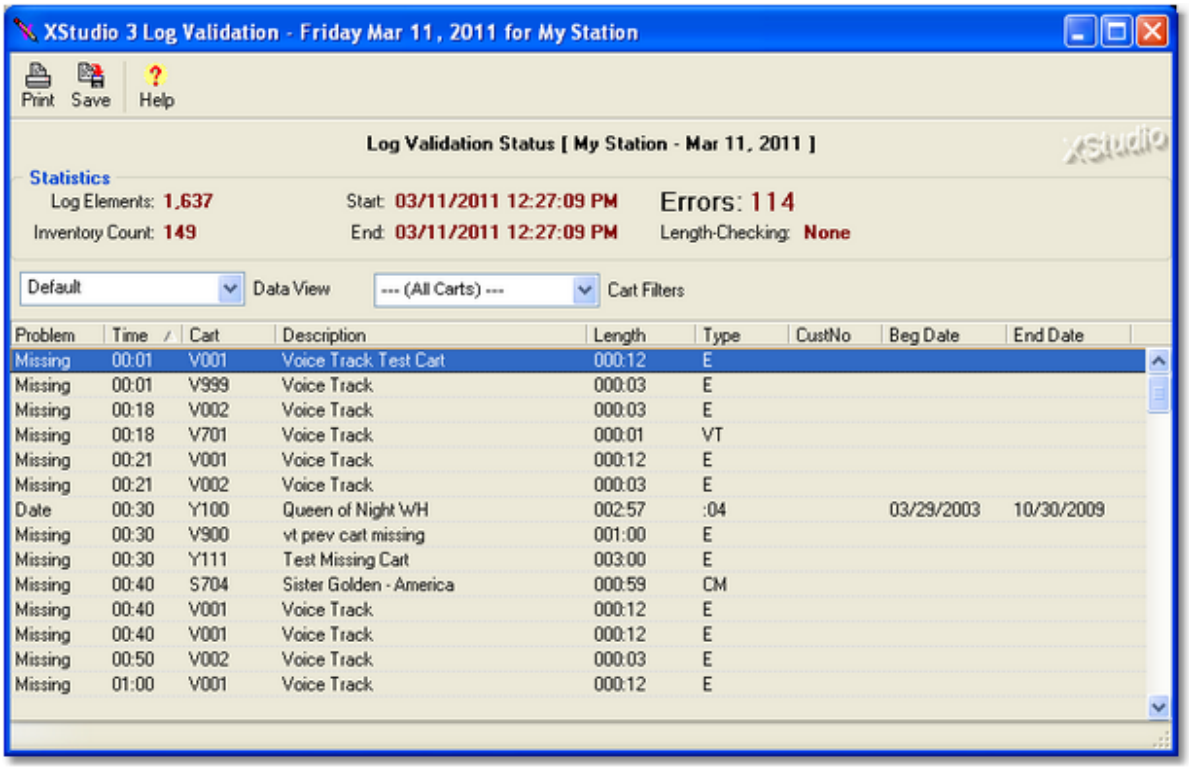
4.4.10 Log Validation

Log validation checks the items on a log to see if they exist in the inventory of the XStudio machine on which the log will be aired, and checks whether or not the item is valid for the log date. A report is generated that can be printed or saved to file.

To validate a log, select the menu item **File | Validate Log**. The current log is validated and a dialog similar to the example shown is displayed, containing the results of the validation.


XStudio 3 Log Validation - Friday Mar 11, 2011 for My Station
Print
Save
Help
Log Validation Status [My Station - Mar 11, 2011]
Statistics
Log Elements: 1,637
Inventory Count: 149
Start: 03/11/2011 12:27:09 PM
End: 03/11/2011 12:27:09 PM
Errors: 114
Length-Checking: None
Default
Data View
--- (All Carts) ---
Cart Filters
Problem | Time | Cart | Description | Length | Type | CustNo | Beg Date | End Date
Missing 00:01 V001 Voice Track Test Cart 000:12 E
Missing 00:01 V999 Voice Track 000:03 E
Missing 00:18 V002 Voice Track 000:03 E
Missing 00:18 V701 Voice Track 000:01 VT
Missing 00:21 V001 Voice Track 000:12 E
Missing 00:21 V002 Voice Track 000:03 E
Date 00:30 Y100 Queen of Night WH 002:57 :04 03/29/2003 10/30/2009
Missing 00:30 V900 vt prev cart missing 001:00 E
Missing 00:30 Y111 Test Missing Cart 003:00 E
Missing 00:40 S704 Sister Golden - America 000:59 CM
Missing 00:40 V001 Voice Track 000:12 E
Missing 00:40 V001 Voice Track 000:12 E
Missing 00:50 V002 Voice Track 000:03 E
Missing 01:00 V001 Voice Track 000:12 E

When the validation process is complete, you can scroll the bottom portion of the display to see individual items that have failed validation and why. The top portion of the display shows statistics about the log, inventory and number of validation errors.

Display Columns

Validation reports are displayed in a columnar format.

> **Hint** Report columns can be moved and re-sized as desired for each data view. The columns' location and size information are saved when the report window is closed and restored the next time a report window is opened.

Here's a brief description of the information displayed, by column:

Column Name	Description
Problem	The specific problem with validating the log item. Problems commonly include the cart's run dates not being valid for the log date, the log item is missing from the audio delivery system inventory, or the logged length of the item and its actual length do not match (if Length-Checking

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Column Name	Description
	enabled).
Time	The scheduled log time.
Cart No	The number of the cart (audio file) played.
Description	Log description of the item.
Length	The playback length of a cart, expressed as minutes, seconds and hundredths of a second.
Type	The item's Type Code, also known as Commercial Type.
Cust No (Customer Number)	The customer number associated with the cart, if originally present on the broadcast log created by the traffic system.
Begin Date	If available, the begin date of the audio item. The date is retrieved from the audio delivery system's inventory.
End Date	If available, the end date of the audio item. The date is retrieved from the audio delivery system's inventory.

Cart Length-Checking

Validation can include cart length-checking. This feature is enabled or disabled from the **Options** menu. Select the Cart Length Check item and then set the +/- range, in seconds, to use. When length-checking is enabled, the validation process first checks the cart's date to ensure it's valid for the log date. Then, the logged length (from the log) is compared against the inventory's reported actual cart length (to AUX mark). If the actual length does not fall within the range of the logged length plus or minus the selected number of seconds, it is reported as having a length problem and will appear in the list of problems. If you change the number of seconds to evaluate, you're prompted to re-validate the log, which will now use the new value to determine if a cart meets the length requirements.

Filtering the Report

You can use the displayed Cart Mask combo box to select a cart filter to use. Cart filters are set up in Preferences and are global to both inventory filtering and validation report filtering. See the section in Preferences on Cart Filters for more information on creating cart filters. The effect of using cart filters is to include only cart numbers that match a given filter set, thus reducing the displayed validation errors to just those a particular user might want to see or take action on. For instance, the traffic department might be interested only in commercials that don't validate, not music or jingles or promos.

Sorting the Report

You can change the sort order of the items list - just click on the column name that you wish to use for sorting. Clicking once on a column sorts ascending; clicking a second time sorts descending.

Report Views

You can select different "views" of the data, which changes the display layout and affects which data is displayed. You can choose to display only date problems, only length problems, only missing carts or group data by problem type or cart number.

Printing the Validation Report

To print the validation information, click on the [**Print**] button on the tool bar or select the menu item

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File | Print Validation Report. A print dialog will be displayed, allowing you to select the printer, choose portrait or landscape mode, choose to print only selected items on the report, or cancel the print operation. The printed report may span more than one page, depending on the number of items that failed validation. The report columns will fit on a standard page in portrait mode, which is the default.

> **Hint** To print only a selected number of items, you can select multiple items in the display using the standard Windows methods for multiple item selection. Then, when printing, check the "Print Only Selected Items" checkbox. You can use this feature to print only one instance of a non-validated item rather than all 10 times the item appeared on the log.

Saving Validation Report Info to a File

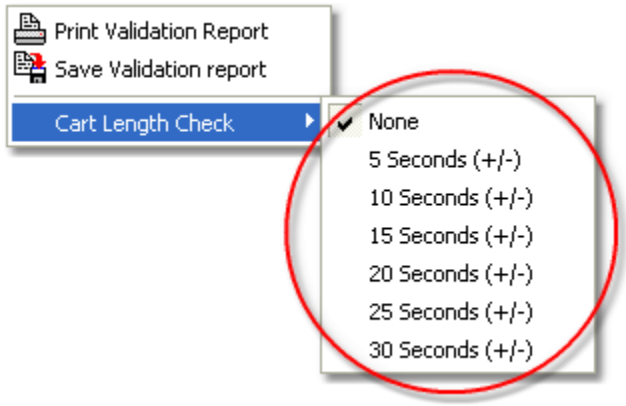
You can save the validation information to a standard text file that can be opened in any text editor or word processor. Click on the [**Save**] button, or select **File | Save Validation Report**, and you'll be prompted to enter a file name and choose a location for saving.

> **Hint** You can [**Right-Click**] on the items display to pop up a menu that also provides the print and save features.

4.4.10.1 Cart Length Checking

You can check logged lengths versus actual cart length (to AUX mark) as a part of the log validation process.

Use the validation pop-up menu to access cart length-checking settings. [**Right-Click**] and select the menu item **Cart Length Check**, as shown. The selected length range will be displayed with a check mark adjacent to the item.



If you change the cart length check value, you will be offered the opportunity to re-validate the current log using the new length check value.

XStudio will remember the setting you make and it will be in effect the next time you open a validation window.

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Reference

Part V

This section contains more detailed background information on a number of key subjects that will help you to gain a better understanding of how XStudio works.

Studying these sections is not absolutely necessary, but it will make it much easier for you to use XStudio more efficiently and effectively.

If you are new to XStudio, we recommend you review the topic on Programming XStudio, which discusses the concepts and provides practical examples. The Keyboard Shortcuts topic is useful for operators.

5.1 Automation Database Maintenance

The automation database is a set of data tables referred to as the **XStudio Database**. These tables store tasks, actions, the external resources used by tasks, scheduled events, song title and artist information, and broadcast log historical information.

If your use of XStudio requires an audio switcher, the need to perform automated tasks like updating a switcher or playing breaks in a satellite format, or the use of scheduled events, you will be working with one or more of the data tables.

5.1.1 Common Table Display Functionality

Each of the automation database table maintenance areas shares some characteristics and interface controls, which are documented in this topic. Some functionality discussed in this section may not be available in some maintenance displays because the functionality is not applicable for that maintenance area.

Data Display

All database tables are displayed in tabular format - rows of information, each containing columns of individual record field information (properties). The display of records for a given table can be manipulated in a number of different ways to organize or limit information that is shown. Information can be sorted, grouped and filtered for ease of working with specific data records. Additionally, individual columns in the table can be moved and resized to suit your needs.

XStudio does not "remember" data display layout settings from one session to the next. When re-opened, tables will display the information in the application default sort order and column layout.

Sorting Data

As a default, most database tables are shown in what's known as "sorted order". This means that the data is organized, generally alphabetically, based on a particular column (field). The sort order, ascending or descending, can be modified on demand. Columns that are a part of the current sort order contain a small triangular mark pointing either up or down to indicate the column's sort direction.

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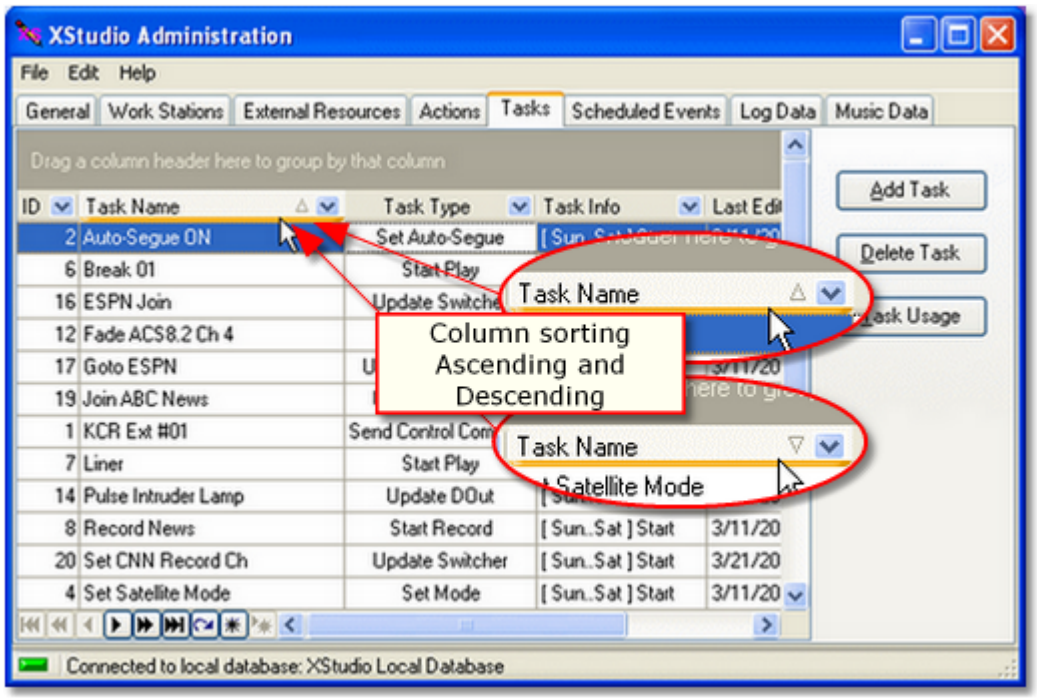
XStudio Administration
File Edit Help
General Work Stations External Resources Actions Tasks Scheduled Events Log Data Music Data
Drag a column header here to group by that column
ID Task Name Task Type Task Info Last Edi
2 Auto-Segue ON Set Auto-Segue
6 Break 01 Start Play
16 ESPN Join Update Switche
12 Fade ACS8.2 Ch 4
17 Goto ESPN
19 Join ABC News
1 KCR Ext #01 Send Control Com
7 Liner Start Play
14 Pulse Intruder Lamp Update DOut
8 Record News Start Record [Sun..Sat] Start 3/11/20
20 Set CNN Record Ch Update Switcher [Sun..Sat] Start 3/21/20
4 Set Satellite Mode Set Mode [Sun..Sat] Start 3/11/20
Add Task
Delete Task
Task Usage
Task Name
Column sorting Ascending and Descending
Task Name
Satellite Mode
Connected to local database: XStudio Local Database

Sorting Data

To sort displayed information on a particular column, click on the column's header text. Initially, the data is sorted ascending. To sort the data descending, click on the column's header text a second time.

You can also sort on multiple columns where applicable. After setting the sort order on the first column, hold down the [**Shift**] key and click on a second column's heading text. Both columns are now included in the sorting, first by the original column, then for equal values in the first column, by the second column.

To remove a column from a group of columns used for sorting, hold down the [**Ctrl**] key and click on the column's header text. The selected column will no longer be included in data sorting.

Not all columns in some data table displays have sorting available. If you attempt to sort on a column that does not have sorting enabled, nothing happens.

Grouping Data

Another way to organize displayed data is to group the information based on like data. For instance, you may wish organize the display so that all Tasks of the same kind are together. When grouping is available for a displayed table, a group panel, as shown, is visible. To group information based on a given column, press and hold the left mouse button down on the column header text, drag the column into the group panel and drop it.

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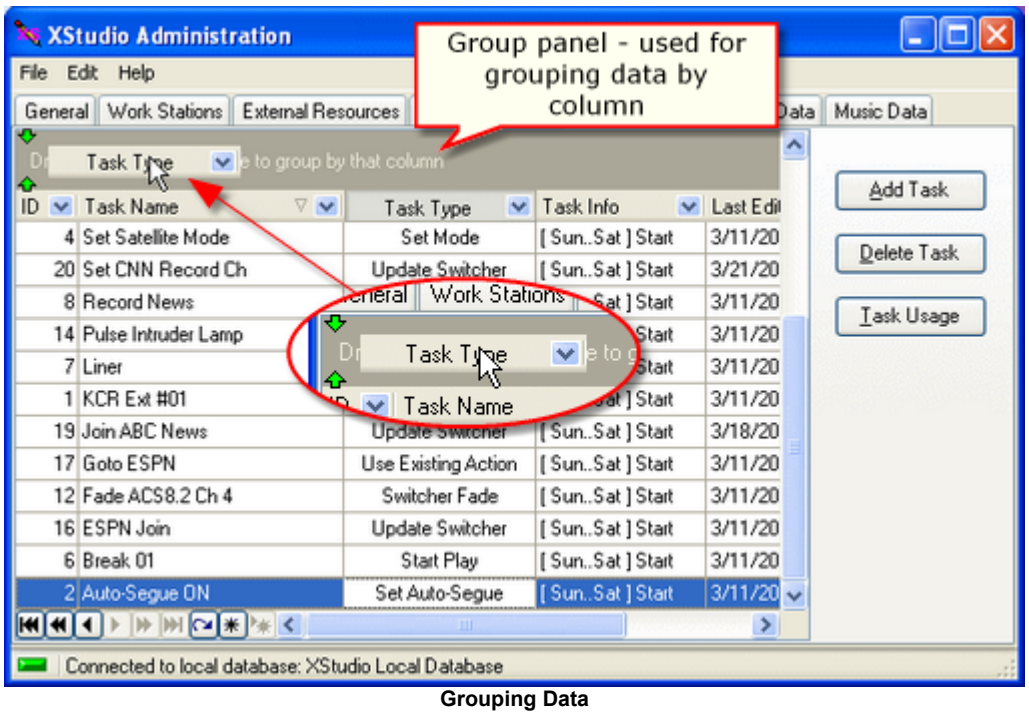
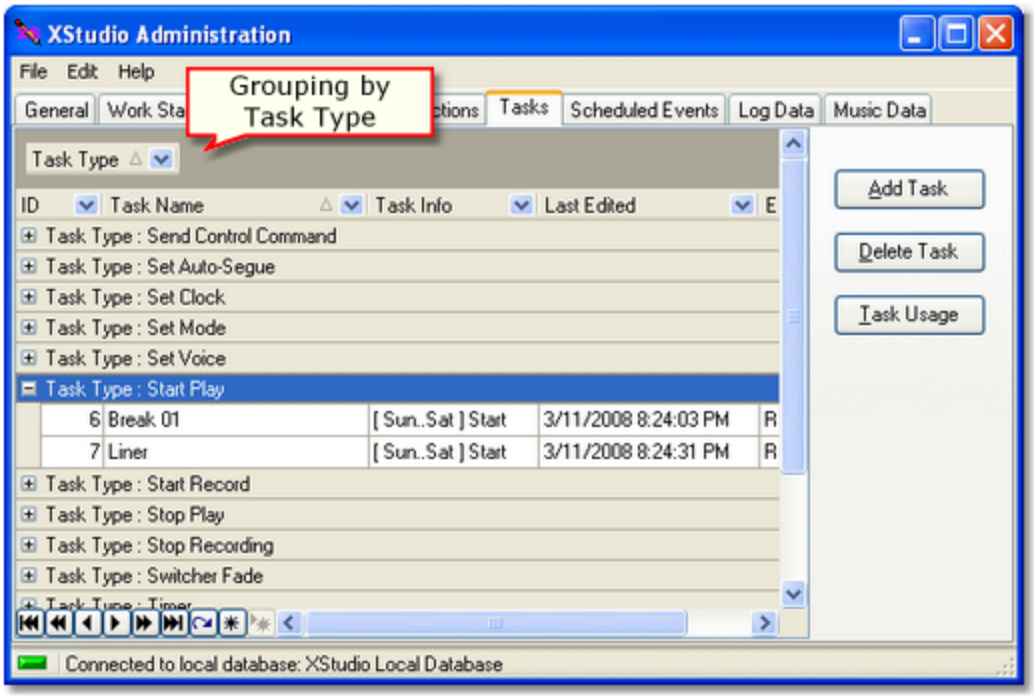

XStudio Administration
File Edit Help
Group panel - used for grouping data by column
General
Work Stations
External Resources
Music Data
Task Type
ID
Task Name
Task Info
Last Edit
4 Set Satellite Mode Set Mode [Sun..Sat] Start 3/11/20
20 Set CNN Record Ch Update Switcher [Sun..Sat] Start 3/21/20
8 Record News [Sun..Sat] Start 3/11/20
14 Pulse Intruder Lamp [Sun..Sat] Start 3/11/20
7 Liner [Sun..Sat] Start 3/11/20
1 KCR Ext #01 [Sun..Sat] Start 3/11/20
19 Join ABC News [Sun..Sat] Start 3/18/20
17 Goto ESPN Use Existing Action [Sun..Sat] Start 3/11/20
12 Fade ACS8.2 Ch 4 Switcher Fade [Sun..Sat] Start 3/11/20
16 ESPN Join Update Switcher [Sun..Sat] Start 3/11/20
6 Break 01 Start Play [Sun..Sat] Start 3/11/20
2 Auto-Segue ON Set Auto-Segue [Sun..Sat] Start 3/11/20
Add Task
Delete Task
Task Usage
Connected to local database: XStudio Local Database

Grouping Data

When grouping of data is applied, the resulting display is similar in appearance to the example shown below.



Data grouped by Task Type

You can group on multiple columns where applicable. The effect is to have groups within groups, also known as sub-groups. To add a column to the current grouping, drag another column into the group panel as you did with the original column.

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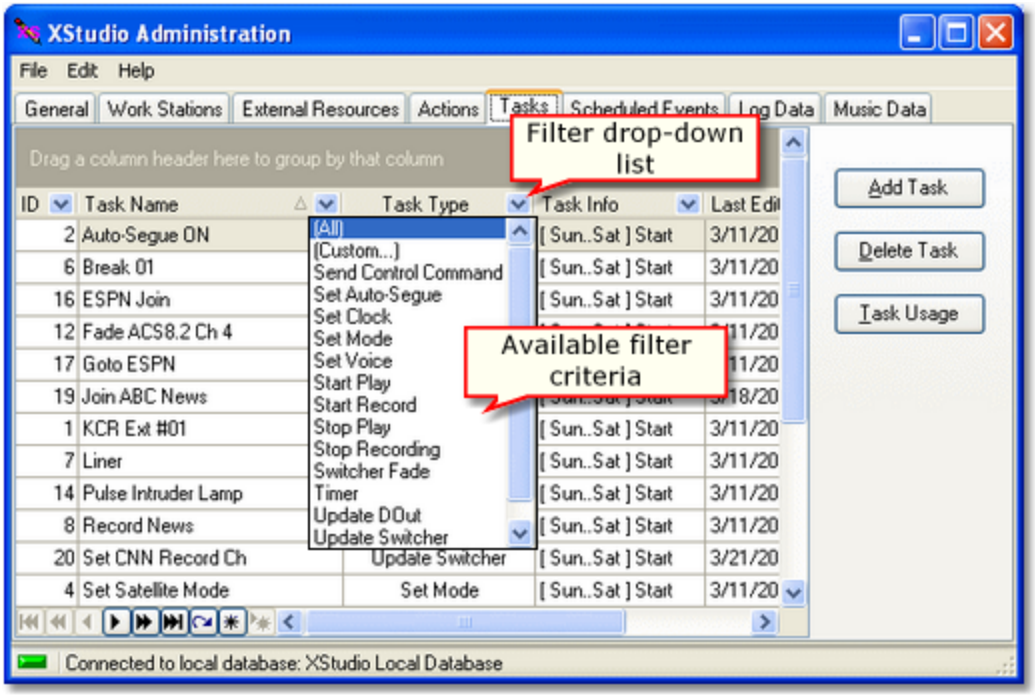
Grouping is not available for all columns in some data tables. If you attempt to drag a column into the group panel that is not allowed, the mouse cursor changes to indicate dropping the column in the group panel is not allowed.

Filtering Data

Displayed records can be reduced to just those items you wish to view using data filters. There are two ways to filter data - by using the dropdown list of filters for a given column of data, and by creating your own custom filters.

To use the built-in column filtering, click on the filter access button for a given column.



Drop-down filter list

Select an item from the list of available filter criteria to display only selected records.

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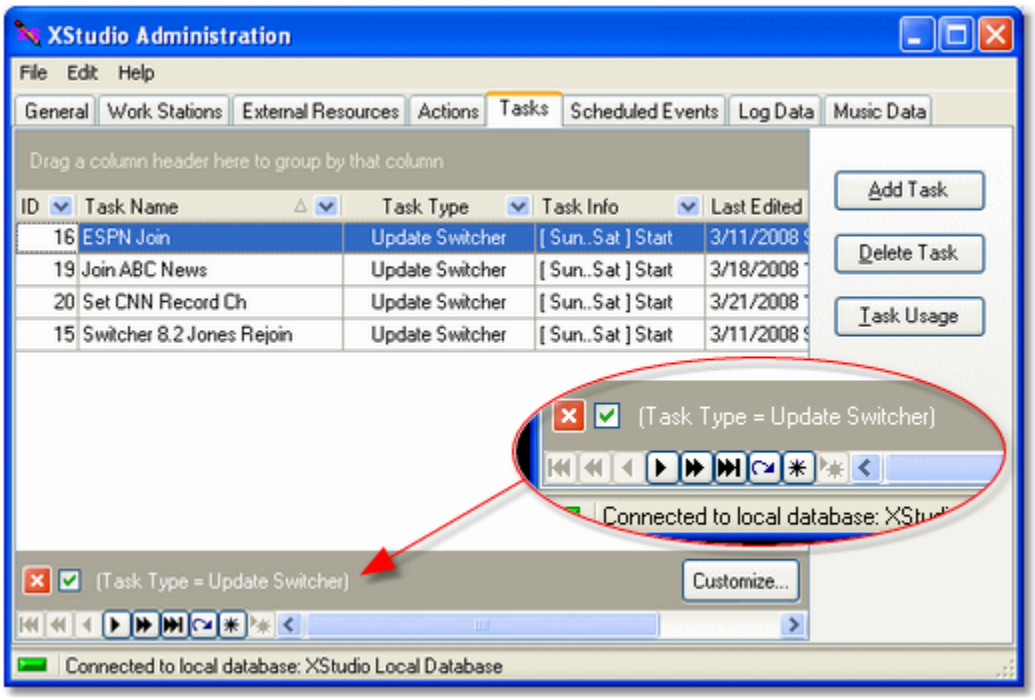
XStudio Administration
File Edit Help
General Work Stations External Resources Actions Tasks Scheduled Events Log Data Music Data
Drag a column header here to group by that column
ID Task Name Task Type Task Info Last Edited
16 ESPN Join Update Switcher [Sun..Sat] Start 3/11/2008
19 Join ABC News Update Switcher [Sun..Sat] Start 3/18/2008
20 Set CNN Record Ch Update Switcher [Sun..Sat] Start 3/21/2008
15 Switcher 8.2 Jones Rejoin Update Switcher [Sun..Sat] Start 3/11/2008
Add Task
Delete Task
Task Usage
(Task Type = Update Switcher)
Connected to local database: XStudio
(Task Type = Update Switcher)
Customize...
Connected to local database: XStudio Local Database

Data filtering active

Data filtering can be temporarily disabled, if desired. Uncheck the filter in the active filter panel and all data will again be displayed. To re-enable the filter, check the filter item in the active filter panel.

Filtering is not available for all columns in some data tables. In a given table display, columns that can be filtered display a dropdown list graphic. Columns that do not support filtering do not contain the filter graphic.

Custom Data Filters

In addition to standard filtering using the dropdown lists for columns, you can also create more complex filtering using custom data filters. To display the custom filter builder dialog, click on the [**Customize**] button in the filter panel.

Launch filter builder dialog

The custom filter builder dialog allows you to modify current filter parameters and to add fields (columns) to the data filter, creating complex filters.

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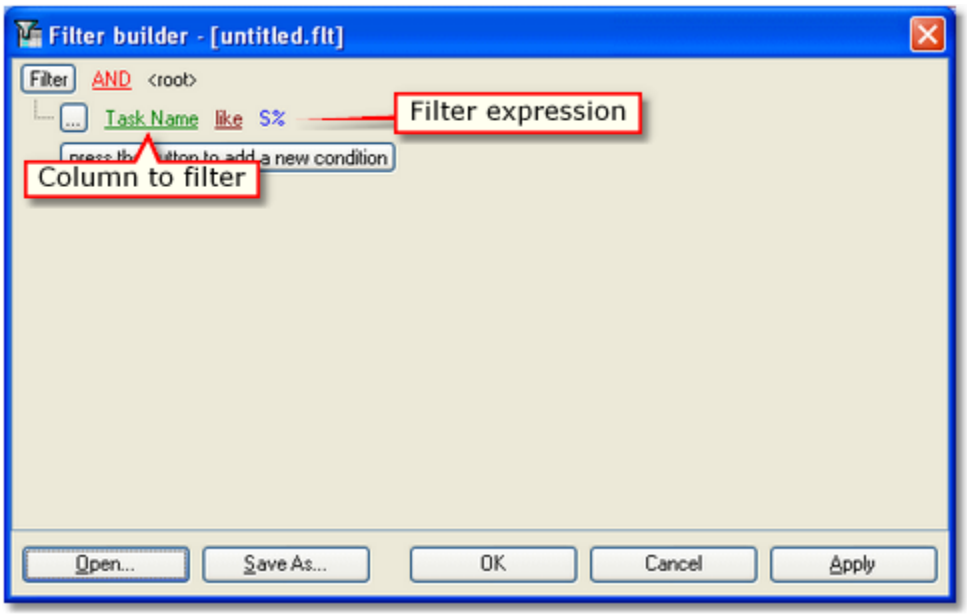

Filter builder dialog

Filters you create can be saved using the [**Save As**] button and later reloaded using the [**Open**] button.

> You can use wildcard characters in filters. The "_" (underscore) character is used for single-character wildcards, the "**%**" (percent) symbol is used for multi-character wildcards.

Adjusting Column Size and Position

Data display columns can be both moved and resized to accommodate your needs. To change the width of a column, move the mouse over the end of the column you wish to resize. The mouse cursor shape changes as shown. Press and hold the left mouse button down, then move left or right to decrease or increase the width of the selected column.

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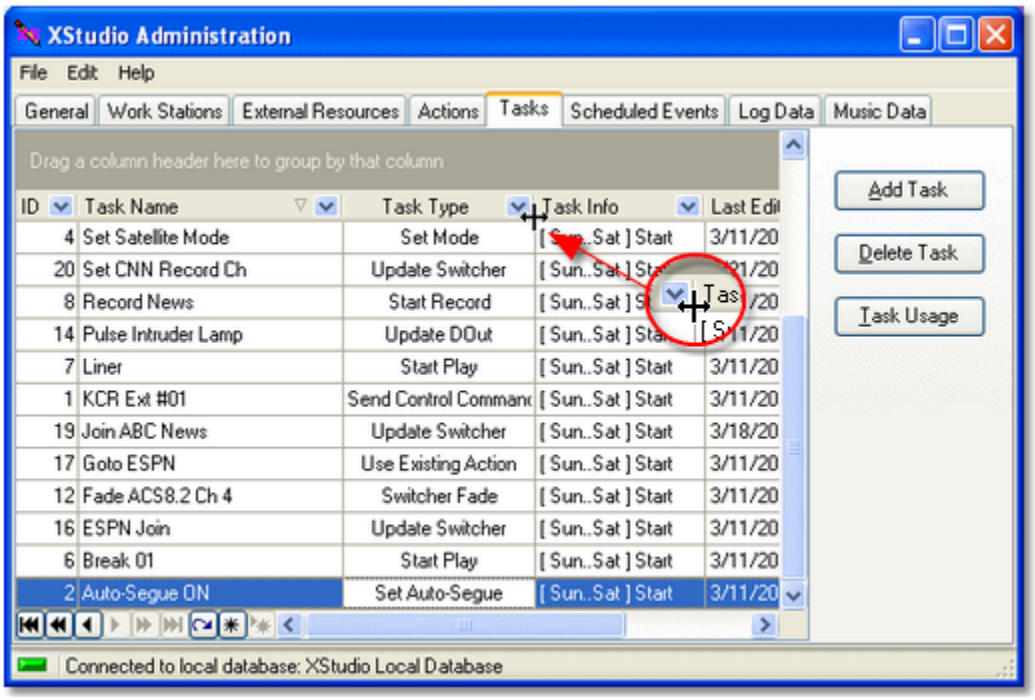
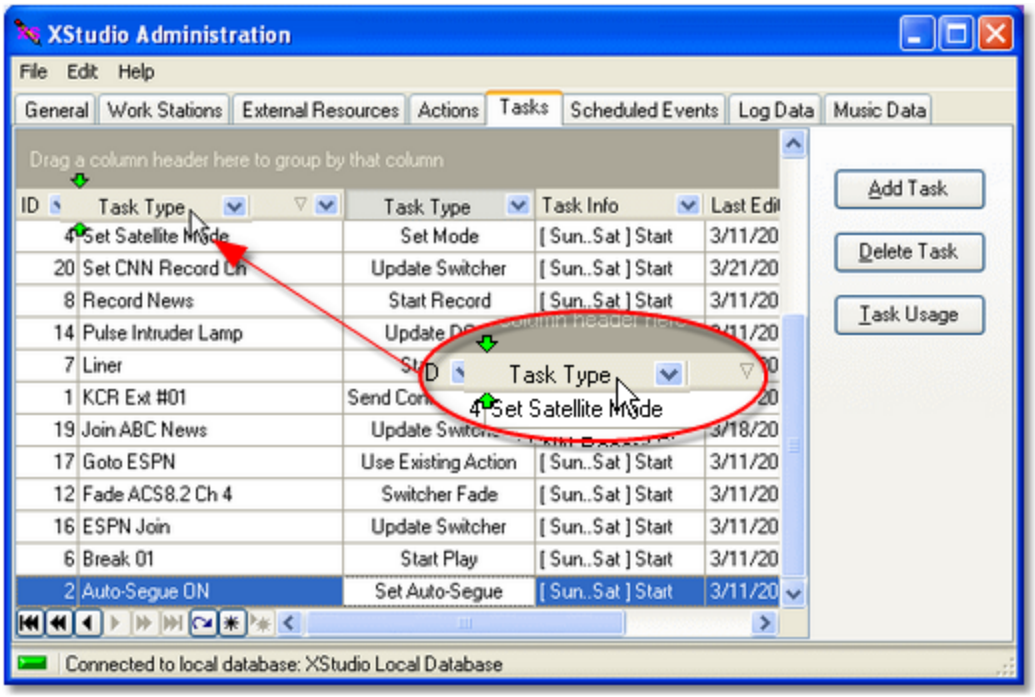

XStudio Administration
File Edit Help
General Work Stations External Resources Actions Tasks Scheduled Events Log Data Music Data
Drag a column header here to group by that column
ID Task Name Task Type Task Info Last Edit
4 Set Satellite Mode Set Mode [Sun..Sat] Start 3/11/20
20 Set CNN Record Ch Update Switcher [Sun..Sat] Start 3/21/20
8 Record News Start Record [Sun..Sat] Start 3/11/20
14 Pulse Intruder Lamp Update DOut [Sun..Sat] Start 3/11/20
7 Liner Start Play [Sun..Sat] Start 3/11/20
1 KCR Ext #01 Send Control Comman [Sun..Sat] Start 3/11/20
19 Join ABC News Update Switcher [Sun..Sat] Start 3/18/20
17 Goto ESPN Use Existing Action [Sun..Sat] Start 3/11/20
12 Fade ACS8.2 Ch 4 Switcher Fade [Sun..Sat] Start 3/11/20
16 ESPN Join Update Switcher [Sun..Sat] Start 3/11/20
6 Break 01 Start Play [Sun..Sat] Start 3/11/20
2 Auto-Segue ON Set Auto-Segue [Sun..Sat] Start 3/11/20
Add Task
Delete Task
Task Usage
Connected to local database: XStudio Local Database

Resizing a column

You can reorder columns by moving a column to a different location. To move a column, press and hold the left mouse button down on the column header text. Drag the column header to another location and drop it. As shown, a pair of arrows appears as you are dragging the column header, indicating the new position of the column if you drop it.


XStudio Administration
File Edit Help
General Work Stations External Resources Actions Tasks Scheduled Events Log Data Music Data
Drag a column header here to group by that column
ID Task Type Task Type Task Info Last Edit
4 Set Satellite Mode Set Mode [Sun..Sat] Start 3/11/20
20 Set CNN Record Ch Update Switcher [Sun..Sat] Start 3/21/20
8 Record News Start Record [Sun..Sat] Start 3/11/20
14 Pulse Intruder Lamp
7 Liner
1 KCR Ext #01
19 Join ABC News
17 Goto ESPN Use Existing Action [Sun..Sat] Start 3/11/20
12 Fade ACS8.2 Ch 4 Switcher Fade [Sun..Sat] Start 3/11/20
16 ESPN Join Update Switcher [Sun..Sat] Start 3/11/20
6 Break 01 Start Play [Sun..Sat] Start 3/11/20
2 Auto-Segue ON Set Auto-Segue [Sun..Sat] Start 3/11/20
Task Type
4 Set Satellite Mode
Add Task
Delete Task
Task Usage
Connected to local database: XStudio Local Database

Moving a column

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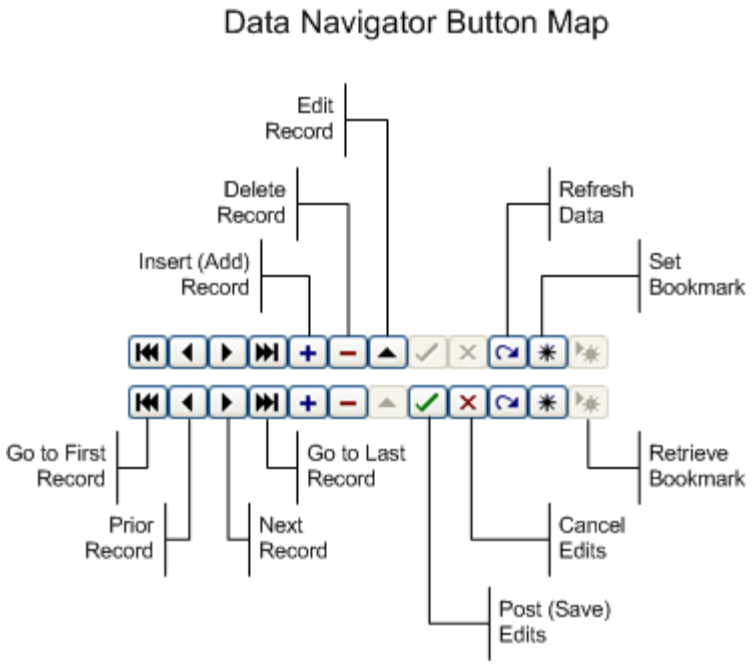
Resizing or moving column display information has no effect on the data - the changes made are cosmetic and are available for users to customize the display for ease of use.

Data Navigators

Several areas in XStudio make use of so-called "data navigators." Essentially, a data navigator is an organized set of buttons that provides an easy-to-use interface for navigating around in displayed data like the log, station definitions, cart masks, and music databases. In addition to navigation, some of the navigators include buttons to add (insert), edit, & delete items.

Two example navigators are shown here – there are two because the "state" (availability) of buttons will vary depending on the current task. For instance, if you are at the beginning of a log, the navigator buttons for moving backwards through the log are disabled – at least, until you move away from the beginning of the log.



Depending upon the area of XStudio in which you're working, some of the navigator buttons depicted are not visible because the functionality they provide is not allowed.

Printing Lists

Most of the maintenance areas provide an option to print selected information, such as external resource maps and action task lists, for reference purposes. Typically, the print option is a part of pop-up context menus. The printer used is the operating system's default printer.

5.1.2 Work Stations

You can define work stations that are a part of an audio system site and assign a unique work station ID number.

Work Station settings are not presently used and are a part of planned future expansion. Defining work stations will do no harm, but these definitions will not be used for any purpose at present.

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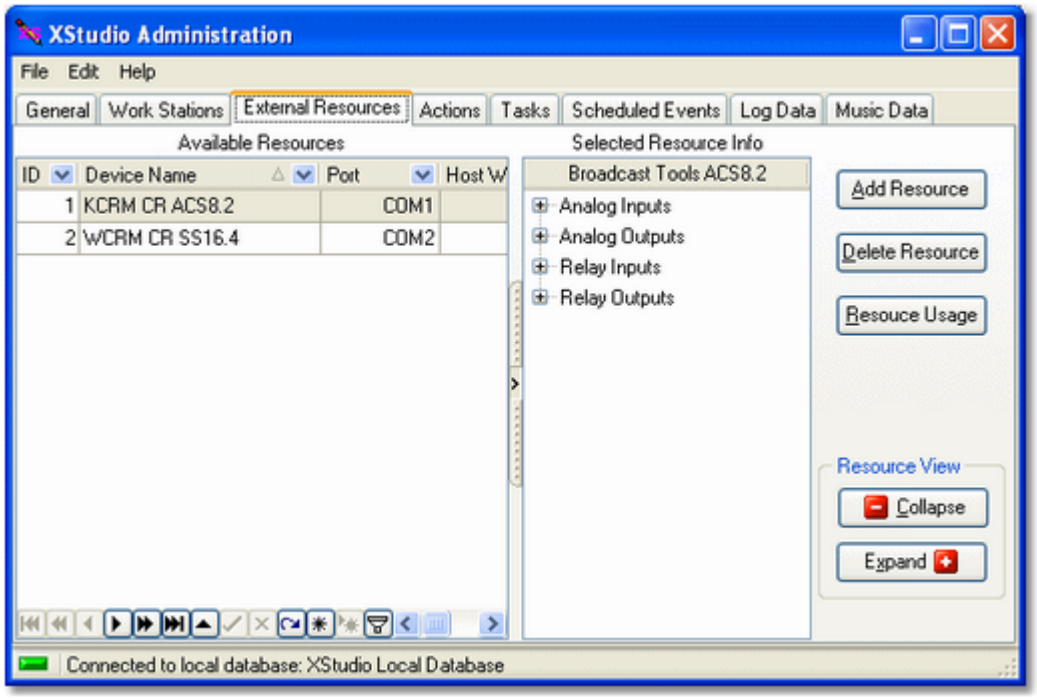
5.1.3 External Resources

A significant part of handling automated task performance is the need to respond to or control devices connected to the PC running XStudio. This topic covers creating, editing and configuring these resources.



External Resource Display

Adding a New Resource

To create a new resource, click on the [**Add Resource**] button. A dialog appears, allowing you to enter a user-friendly name for the new resource, select the resource type from a list of supported devices, and select the COM port to which the resource is connected on the host PC.

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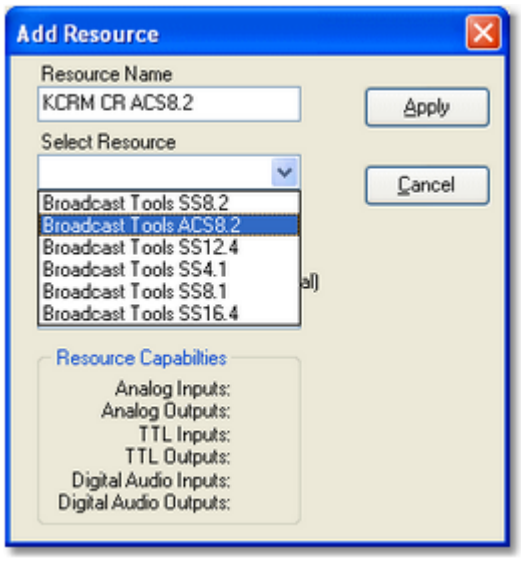

Selecting the Resource Type

Add Resource Properties

Items with a check mark in the **REQ** column require user entry, while unchecked items have default values which can optionally be changed.

Property	***REQ***	***Description***
Resource Name	✓	The user-friendly name of the resource. Maximum length is 30 characters.
Resource Type	✓	Select the resource type from the dropdown list. All supported resources are listed.
COM Port		Select the COM port to which the device is connected from the dropdown list. COM ports 1 through 8 are supported.
Host Work Station		Not used. For future expansion.

When you have completed setting the properties for the new resource, click on the [**Apply**] button. The database record for this resource is created, along with a device map that displays available input channels, output channels, TTL Inputs, TTL Outputs, Digital Audio Inputs and Digital Audio Outputs, as applicable.

Resource Labeling

Each resource has some combination of audio input channels, audio output channels, relay inputs and relay outputs. Not all resources have all of these features, but all have at least some of them.

When a resource is first created, a default set of labels is applied to all items available in the resource as a starting point. For ease in identification as you are using the resource, it's a good idea to label them to better identify each item's purpose.

To edit a resource label, select the item you wish to edit, then either use the [**F2**] key or [**Left-Click**] to begin editing, as shown.

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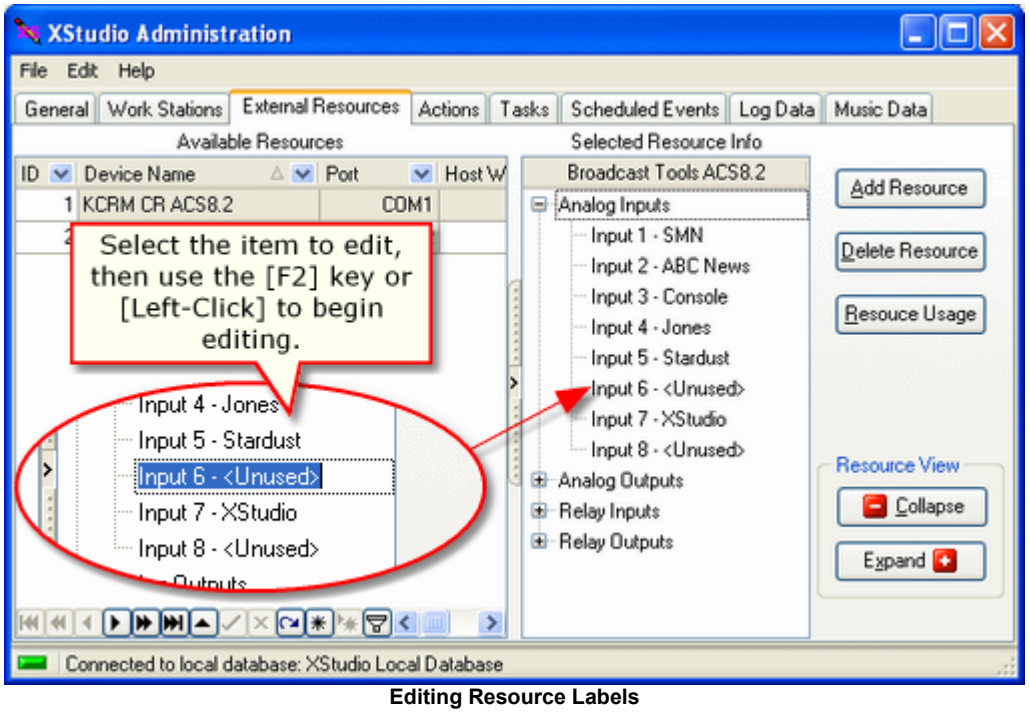

Editing Resource Labels

When you have completed the label edits, press the [**Enter**] key or select another label to edit. All label edits are automatically saved when you move to a new resource record or use the [**Post**] button on the resources data navigator.

Attaching Actions to Relay Inputs

If a selected resource has relay inputs, you can associate an Action with an input. When XStudio receives a message from the resource that the input relay has been triggered, XStudio executes the assigned action.

> You must have created at least one Action in order to be able to assign an Action to a Relay Input. See the Actions topic for information on creating actions.

To assign an Action to an input relay, [**Right-Click**] on the relay input label to display a pop-up context menu of options. Select the item **Assign Action to Relay Input...** A dialog appears, containing a dropdown list of all available Actions.

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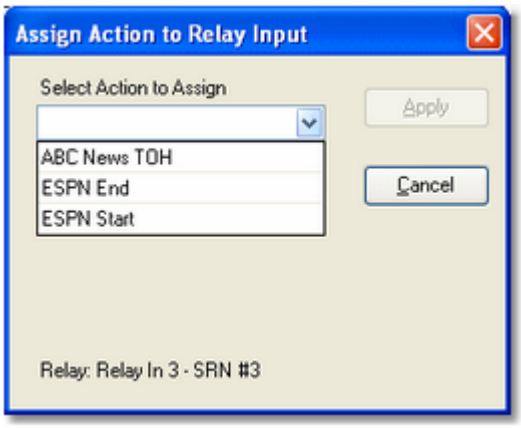
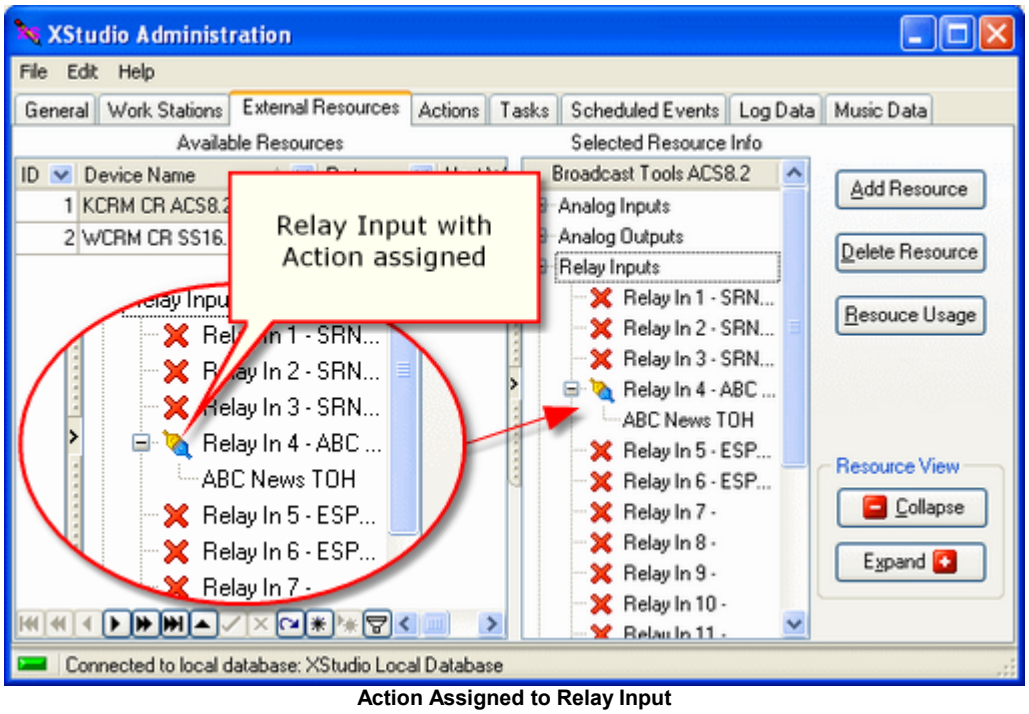


Assign Action to Input Relay Dialog

When you have selected the Action you want associated with the Input Relay, click on the [**Apply**] button to save your selection. The selected resource label will be updated to reflect the assignment.



Action Assigned to Relay Input

Actions assigned to input relays here are considered the "default" input relay mapping (the connection of an Action to an Input Relay). During XStudio program execution, these input relay connections can be overridden using the Remap Input Relays Task. The same task type can also be used to restore the default input relay mapping assigned here. This type of functionality is particularly useful when executed special programming like sports broadcasts or music specials delivered by a satellite programming service.

Remove (Clear) an Action from an Input Relay

To remove or "unhook" an Action from an Input Relay, [**Right-Click**] on the relay input label and select the menu item **Clear Action from Relay Input ...** The attached Action is cleared and Input Relay graphic changes to a red "X" to reflect that it no longer has an Action assigned to it.

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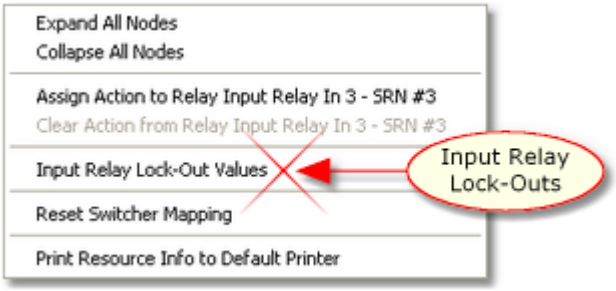
Adjusting Input Relay Lock-Out Values

If a selected resource has input relays, you can "lock out" the relay for a specified period of time after it is initially triggered. The effect is to ignore any further trigger messages from the device until the "lock-out" time has elapsed. The idea is to prevent multiple Input Relay triggers, either as a result of erroneous multiple relay assertions by the device signaling the Input Relay or so-called "relay bounce." Adjusting relay lock-out values is also sometimes referred to as "setting relay de-bounce."

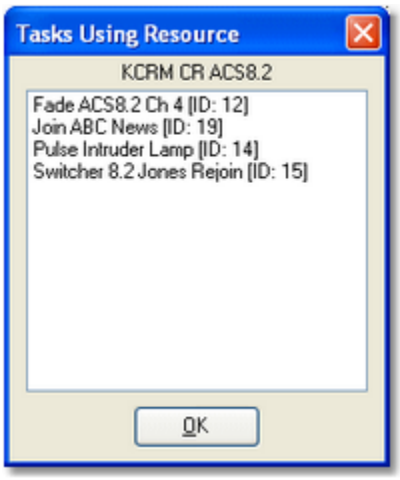
To adjust lock-out values, [**Right-Click**] anywhere on the resource map (the list of resource labels). A context menu appears, similar to the example shown.


Expand All Nodes
Collapse All Nodes
Assign Action to Relay Input Relay In 3 - SRN #3
Clear Action from Relay Input Relay In 3 - SRN #3
Input Relay Lock-Out Values
Reset Switcher Mapping
Print Resource Info to Default Printer
Input Relay Lock-Outs

Select the **Input Relay Lock-Out Values** menu item to display the Modify Device Input Relay Lock-Out dialog. When edits are complete and applied, the dialog closes and resource record is updated.

Resource Usage

Several types of automation Tasks are resource-specific, such as tasks that update switcher channels, fade an audio channel on the switcher, or pulse a DOut (Relay Output). You can see which tasks are using a resource by selecting the resource and clicking on the [**Resource Usage**] button. All tasks are scanned to see which of them use the selected resource and when the scan is complete, a dialog is displayed containing a list of the tasks that use the resource you selected.


Tasks Using Resource
KCRM CR ACS8.2
Fade ACS8.2 Ch 4 [ID: 12]
Join ABC News [ID: 19]
Pulse Intruder Lamp [ID: 14]
Switcher 8.2 Jones Rejoin [ID: 15]
OK

The displayed list includes the task name and its unique ID number. This list can be printed, if desired. [**Right-Click**] on the list of tasks and select the **Print List to Default Printer** menu item. See the Printing Lists topic for more information on printing.

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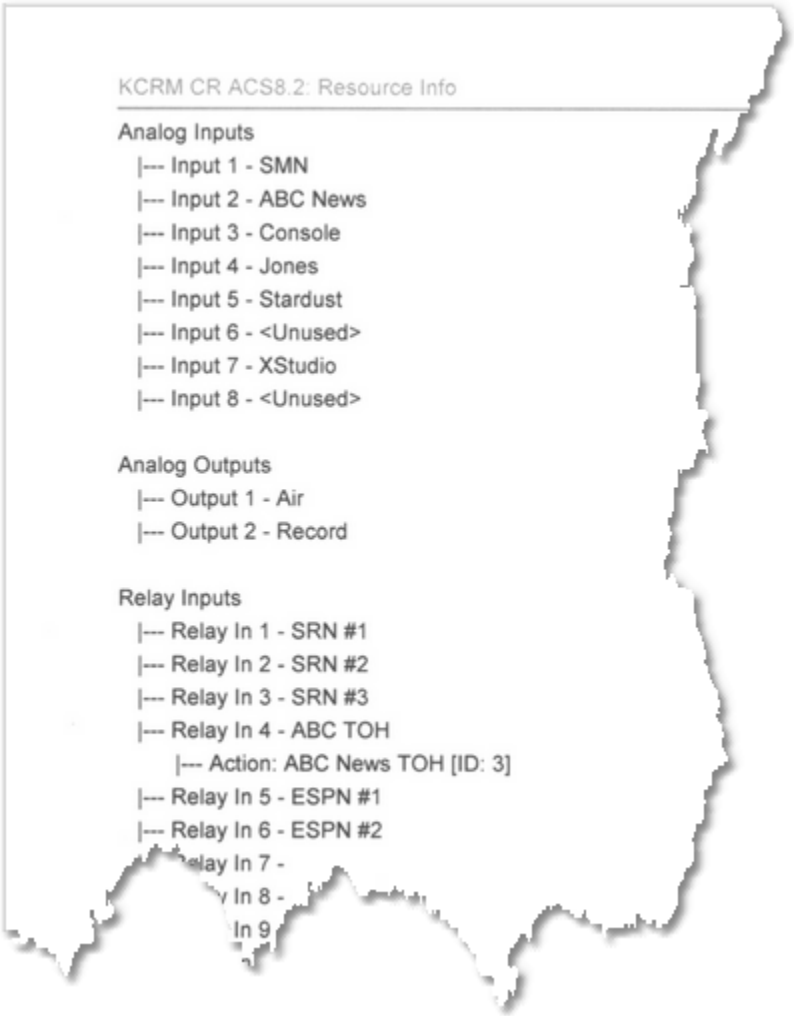
Deleting a Resource

When you no longer need a resource, you can remove it from the database with the [**Delete Resource**] button. If the resource is used by any tasks, a message will appear, identifying how many tasks use the resource and asking you to confirm that the resource is to be deleted.

> ***Deleting a resource is permanent and cannot be undone!*** It is highly recommended that ***before*** you delete a resource, you create a resource usage report so that you know which tasks, if any, will need to be modified or removed.

Printing Resource Information

Resource information can be printed for reference, if desired. [**Right-Click**] on the resource map display and select the menu item **Print Resource Info to Default Printer**. The selected resource information will be printed, similar to the example shown. For more information on printing, see the Print Lists topic.


KCRM CR ACS8.2: Resource Info
Analog Inputs
|--- Input 1 - SMN
|--- Input 2 - ABC News
|--- Input 3 - Console
|--- Input 4 - Jones
|--- Input 5 - Stardust
|--- Input 6 - <Unused>
|--- Input 7 - XStudio
|--- Input 8 - <Unused>
Analog Outputs
|--- Output 1 - Air
|--- Output 2 - Record
Relay Inputs
|--- Relay In 1 - SRN #1
|--- Relay In 2 - SRN #2
|--- Relay In 3 - SRN #3
|--- Relay In 4 - ABC TOH
|--- Action: ABC News TOH [ID: 3]
|--- Relay In 5 - ESPN #1
|--- Relay In 6 - ESPN #2

Sample Resource Report

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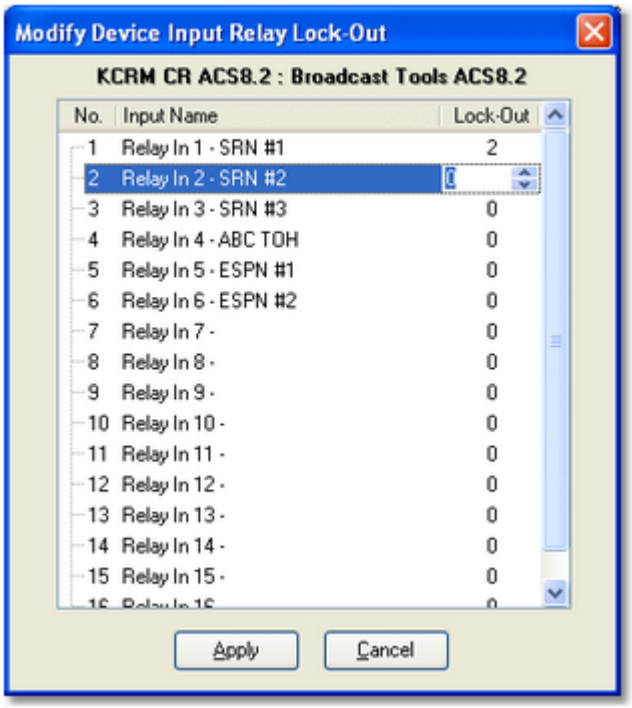
5.1.3.1 Input Relay Lock-Out Dialog

The Input Relay Lock-Out dialog is used to set the "lock-out" time of each Input Relay for an external device that includes input relays. The display identifies the selected resource name and type, along with displaying a list of input relays, their labels and current lock-out values.


Modify Device Input Relay Lock-Out
KCRM CR ACS8.2 : Broadcast Tools ACS8.2
No.
Input Name
Lock-Out
1 Relay In 1 - SRN #1 2
2 Relay In 2 - SRN #2 0
3 Relay In 3 - SRN #3 0
4 Relay In 4 - ABC TOH 0
5 Relay In 5 - ESPN #1 0
6 Relay In 6 - ESPN #2 0
7 Relay In 7 - 0
8 Relay In 8 - 0
9 Relay In 9 - 0
10 Relay In 10 - 0
11 Relay In 11 - 0
12 Relay In 12 - 0
13 Relay In 13 - 0
14 Relay In 14 - 0
15 Relay In 15 - 0
Apply
Cancel

Input Relay Lock-Out Properties Dialog

Lock-out values are expressed in seconds, in a range of 0..59 seconds. Setting a non-zero value instructs XStudio to ignore any additional Input Relay signals received for the number of seconds specified.

Setting All Lock-Out Values at Once

You can set all lock-out values for the resource at once, if desired. To do so, [**Right-Click**] on an input name, which displays a context menu. Select the menu item **Set All Values to ..** and enter the value to set for all Input Relays.

Printing Lock-Out Settings

If desired, you can print the lock-out values you have assigned to the resource for reference. [**Right-Click**] on an input name and select the menu item **Print Lock-Out Information**. See the Printing Lists topic for more information.

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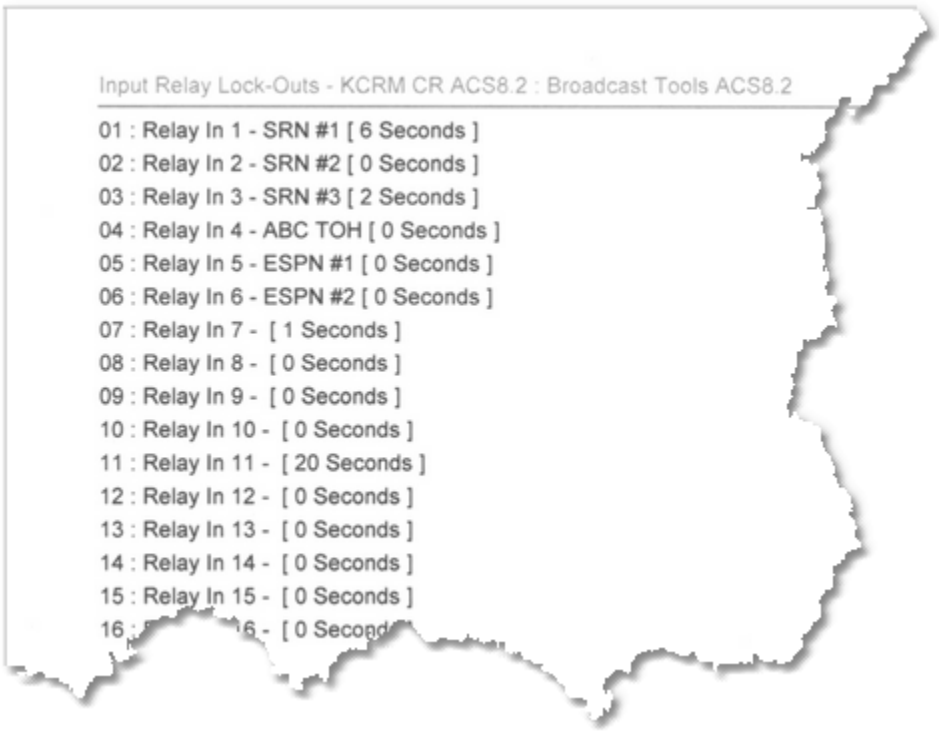

Input Relay Lock-Outs - KCRM CR ACS8.2 : Broadcast Tools ACS8.2

01 : Relay In 1 - SRN #1 [6 Seconds]
02 : Relay In 2 - SRN #2 [0 Seconds]
03 : Relay In 3 - SRN #3 [2 Seconds]
04 : Relay In 4 - ABC TOH [0 Seconds]
05 : Relay In 5 - ESPN #1 [0 Seconds]
06 : Relay In 6 - ESPN #2 [0 Seconds]
07 : Relay In 7 - [1 Seconds]
08 : Relay In 8 - [0 Seconds]
09 : Relay In 9 - [0 Seconds]
10 : Relay In 10 - [0 Seconds]
11 : Relay In 11 - [20 Seconds]
12 : Relay In 12 - [0 Seconds]
13 : Relay In 13 - [0 Seconds]
14 : Relay In 14 - [0 Seconds]
15 : Relay In 15 - [0 Seconds]
16 : [illegible]6 - [0 Second[illegible]

Sample Relay Lock-Out Report

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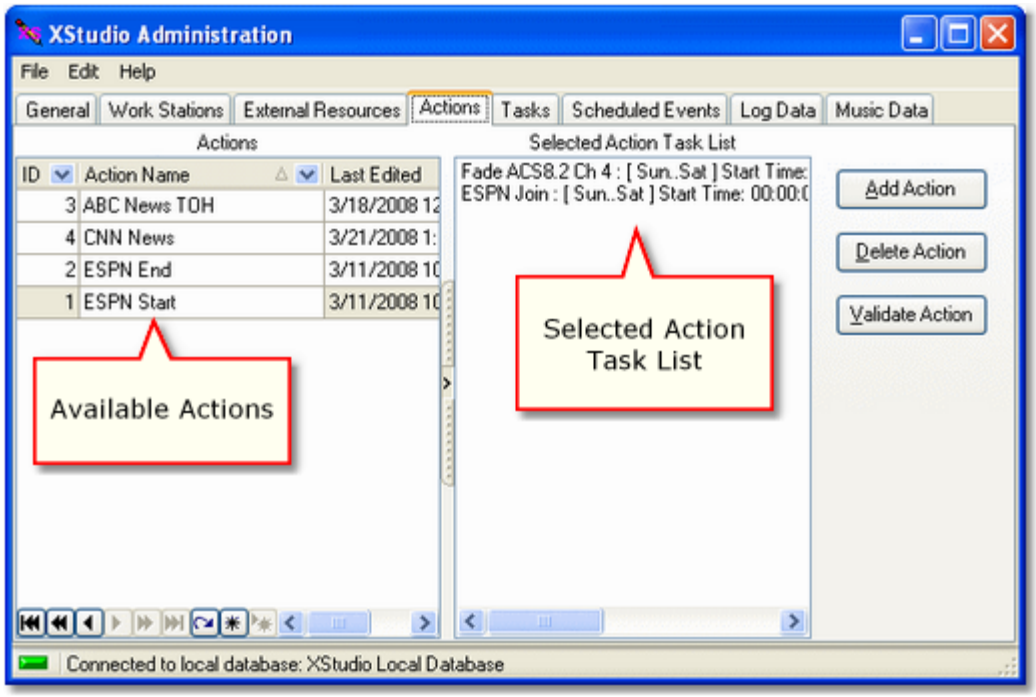
5.1.4 Actions

An Action is a set of instructions you create (and name) to perform one or more Tasks. Actions are a powerful key component of XStudio program execution. Actions execute as a result of some sort of stimulus or "trigger," which can be as a response to an Input Relay, a scheduled event, a log directive, a hot-key or embedded in a cart and triggered at start of playback.



Action Maintenance Display

Actions are essentially ordered lists of Tasks to perform. By design, Tasks are reusable - once a Task is created, you can use it in multiple Actions, as needed. When creating new Actions or editing them, you work with the Action Edit Dialog.

Adding a New Action

> In order to create a new action, at least one Task must be defined. If you attempt to create a new Action and there are no Tasks defined, you will be prompted to first create a Task.

To create a new Action, click on the [**Add Action**] button. The Action edit dialog is displayed. Refer to the Action edit dialog topic for details on naming the Action and creating the the list of Tasks to perform. When you have completed creation of the new Action and applied the changes, the Action appears in the actions table display and its tasks are displayed in the Action Task List.

Editing an Action

To edit an Action, select the action you wish to change and [**Double-Click**] on it. The Action edit dialog is displayed, as it is when creating a new Action. Edit the Action name or add, remove and reorder Tasks in the action task list and click on the [**Apply**] button to save your changes.

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You can also begin editing an Action by double-clicking on the selected Action's ***task list display***.

Deleting an Action

To delete an existing Action that is no longer needed, select the Action you wish to delete and click on the [**Delete Action**] button.

Deleting an Action is permanent and cannot be undone! When an Action is deleted, its unique ID number is also removed and is not automatically used again until such time as the maximum ID number (~4 billion) is reached. If you wish to retain the Action ID number for future usage, you may wish to edit the Action instead, changing the name to something like "Unused Action # 12" and modifying the task list to be a single task like a 5-second timer. This will preserve the Action ID without creating any problems should the Action inadvertently be executed. We used a Timer task in our example because such a task does nothing but wait around for the prescribed amount of time and then exits.

Validating an Action

Tasks are global in nature and can be used (shared) by any number of Actions, so it is a possibility that you might inadvertently delete a Task that is still in use as a part of an Action. Action validation checks all Tasks that are a part of the Action to ensure that they exist in the Tasks table.

How Actions are Referenced

Actions are referenced by their unique Action ID number, which is assigned by XStudio when created. Under normal circumstances, you will not need to know the Action ID value when assigning the Action to an input relay or a scheduled event, as XStudio presents the Actions in a list for selection by their user-friendly name. However, if you use an Execute Function log directive to execute an Action or are embedding an Action reference in a cart for execution at start of play, you will need to know the Action ID number. These methods require the Action ID number reference for execution. In both cases, you are limited to using Action ID's 1 - 9999, as the maximum length of the reference number is 4-digits.

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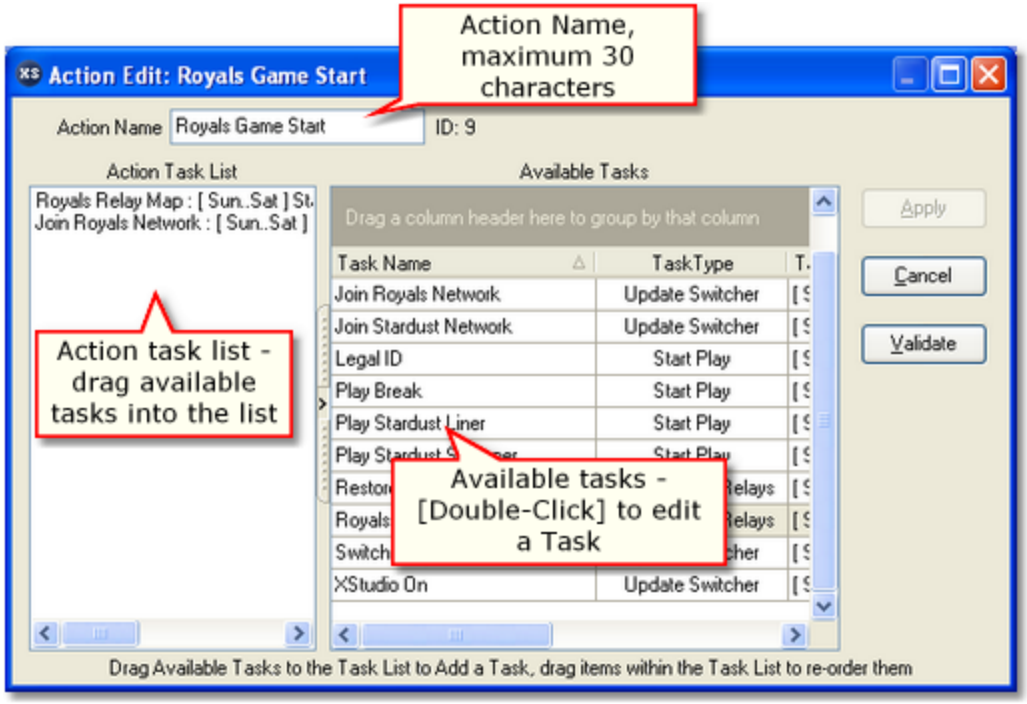
5.1.4.1 Action Edit Dialog

Creating new Actions and editing an Action are performed with the Action edit dialog, shown here. Using this dialog, you can rename the Action to be more meaningful; add, remove and reorder Tasks that are a part of the Action task list; and add or edit Tasks that you might wish to include in the Action.



Action Edit Dialog

Action Edit Dialog Properties

Items with a check mark in the **REQ** column require user entry, while unchecked items have default values which can optionally be changed.

Property	***REQ***	***Description***
Action ID		A unique ID number is automatically generated for each new Action. The ID number is in a range of 1 to ~4 billion and auto-generation starts at 1 and counts up. When editing a Action, the Action ID is displayed for reference. When creating a new Action, the Action ID is not displayed as it is not assigned until the Action is saved using the [**Apply**] button.
Action Name	✓	The user-friendly name of the Action. Maximum length is 30 characters.
Action Task List	✓	The Action task list is as implied - an ordered list of Tasks to be performed as a part of the Action. Task properties related to operating mode, day of week and time of day control whether or not a specific task is actually executed at Action run-time.

Adding Tasks to the Action Task List

To add a Task to the Action task list, select the Task from the table of available tasks. Hold the [**Left**]

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mouse button down and drag the Task into task list box, then drop it (release the [**Left**] mouse button). When dragging the item, you can determine its position in the list by hovering the mouse in the exact position you want the Task before releasing the mouse button to drop it.

Moving a Task within the Action Task List

To move a Task up or down in the list, select the item you wish to move, hold down the [**Left**] mouse button, drag the item to its new position and release the mouse button.

Deleting a Task from the Action Task List

To delete a Task from the Action task list, select the item and either; 1) Press the [**Delete**] key; or 2) [**Right-Click**] and select the **Delete Item from List** menu option.

Action Task List Context Menu

Editing a Task in the Action Edit Dialog

Tasks can be edited while working in the Action Edit dialog. [**Double-Click**] on the Task you wish to edit to display the selected task's properties edit dialog. Make the desired changes and click on the task properties [**Apply**] button to save the changes.

Keep in mind that Tasks are ***global*** in nature and may be used in other Actions. Any changes you make to a Task will also be in effect when other Actions using the task are executed.

Adding a New Task in the Action Edit Dialog

If you find yourself in need of a new Task when editing an Action, [**Right-Click**] on any Task in the Available Tasks table. Select the **Create New Task** menu item from the menu, as shown.

Available Tasks Context Menu

Create the new task as normal. After saving the Task, it will be available for selection and use in the Action Task List.

5.1.4.2 Embedding an Action in a Cart

In XStudio, you can cause an Action to be executed when a cart (audio item) begins playing. This technique might be useful if you need to perform certain tasks at a non-scheduled time. By linking the execution of an Action to the play start of a specific cart, the Action can be executed on-demand without regard to time or reliance on a relay closure or other method of triggering execution of an Action.

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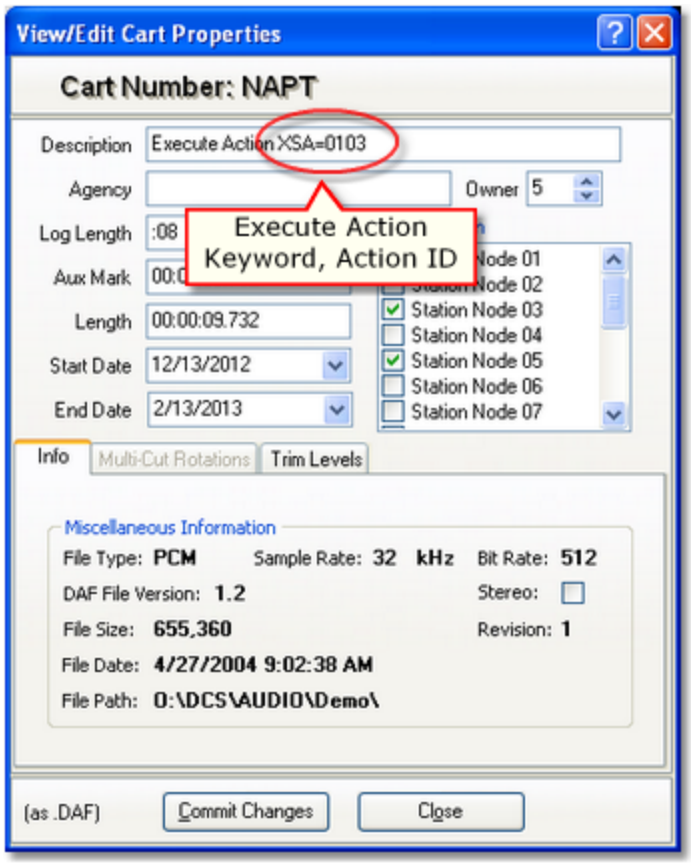
Assuming the Action you wish to execute has been created, there are two steps involved in using this functionality:

1. Enable the functionality (see Enable Actions Embedded in Carts) in XStudio Preferences. Unless this feature is enabled, XStudio will ignore any Actions embedded in carts. Enabling this feature is a matter of checking the appropriate item and saving your changes in Preferences.
2. Modify the cart header to include the Action information, which consists of a keyword and an Action ID.

Modifying the Cart to Execute an Action

To use a particular cart number to execute an Action, the cart's header Description field needs to be edited to include a keyword and an Action ID number to execute. This can be done when the cart is created, or later edited to add the Action information. The example shown utilizes the XStudio View/ Edit Cart Properties dialog.



Embeded Action Example

The only difference between a normal cart and one that has embedded Action information is the content of the Description field. The description field must be edited to include a keyword and Action ID in the format:

XSA=nnnn

The ***XSA=*** part is the keyword, the ***nnnn*** part is the 4-digit Action ID to be executed. There must be no spaces between any of the characters and the characters following the equals sign must be numeric and a full 4 characters in the range 0001 to 9999. Note that if the Action ID number is, for instance, "**99**", the text entered here must be "**0099**" to meet the 4-digit requirement.

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The keyword side (***XSA=***) can be upper or lowercase (or a mixture), but must be exactly those 3 characters followed by the equals sign.

When you have completed your edits, save the changes. In the example shown, you'd click on the [**Commit Changes**] button.

How do embedded Actions work?

The inner workings of Actions embedded in carts are fairly straightforward. When this feature is enabled and XStudio signals the audio engine to play a cart, the audio engine looks at the cart information to determine if there is an embedded Action. If the keyword "***XSA=***" is found, the 4 digits following the keyword are extracted and the audio engine signals XStudio to perform the Action, passing the 4-digit ID value. This special signal is sent a few milliseconds before actual start of playback. The audio engine then begins playing the cart as normal.

When XStudio receives notification to execute the Action, the same things that are done with all Action execution are done - XStudio tries to find the Action and if so, starts execution. If the Action is not found, that fact is logged to the event log and nothing happens. Within the Action itself, all normal execution rules apply, including any restrictions placed tasks relating to mode of operation, time of day and day of week. In other words, executing an Action in this way behaves the same as an Action initiated by any of the other available methods. The only thing that's different is that XStudio double-checks the ID value it receives to make sure it evaluates to a number. This is done to catch situations where you might have inadvertently entered the wrong information or somehow managed to create the keyword (***XSA=***) when entering a normal cart description.

While not important to the actual Action execution, the length and audio content of the cart should be considered. If, for instance, XStudio is being used as network programming originator and needs to signal affiliates for a local break, it may be that the audio content of the cart could be nothing more than 1 second of silence - enough time to execute the Action, which in this example would include Send Control Command task to perform the affiliate break signal, and allow enough time for the affiliate to switch away before XStudio plays the next cart on the log, which in this example would be the first element of a break.

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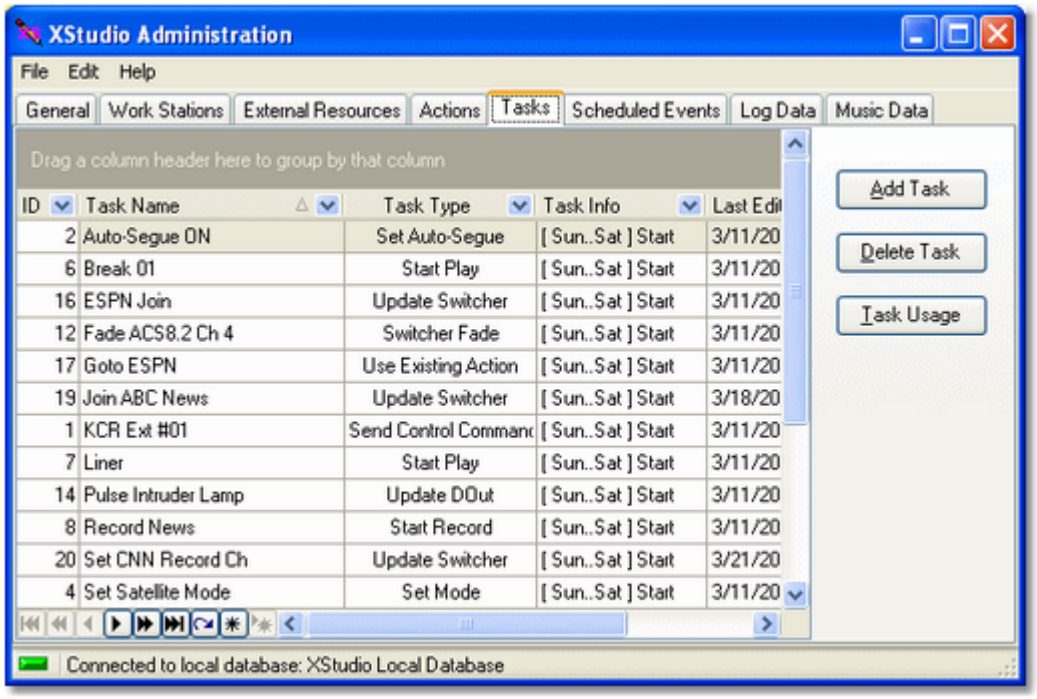
5.1.5 Tasks

Tasks are the basis of automated task processing. Tasks are ultimately made a part of an Action, which is an ordered list of Tasks to perform. XStudio supports a number of task types, each with its own set of properties. In this area, you can create, edit and delete Tasks.

> **Hint** For more information about available task types and their properties, refer to the Task Reference topic.


XStudio Administration
File Edit Help
General
Work Stations
External Resources
Actions
Tasks
Scheduled Events
Log Data
Music Data
Drag a column header here to group by that column
ID
Task Name
Task Type
Task Info
Last Edit
2 Auto-Segue ON Set Auto-Segue [Sun..Sat] Start 3/11/20
6 Break 01 Start Play [Sun..Sat] Start 3/11/20
16 ESPN Join Update Switcher [Sun..Sat] Start 3/11/20
12 Fade ACS8.2 Ch 4 Switcher Fade [Sun..Sat] Start 3/11/20
17 Goto ESPN Use Existing Action [Sun..Sat] Start 3/11/20
19 Join ABC News Update Switcher [Sun..Sat] Start 3/18/20
1 KCR Ext #01 Send Control Comman [Sun..Sat] Start 3/11/20
7 Liner Start Play [Sun..Sat] Start 3/11/20
14 Pulse Intruder Lamp Update DOut [Sun..Sat] Start 3/11/20
8 Record News Start Record [Sun..Sat] Start 3/11/20
20 Set CNN Record Ch Update Switcher [Sun..Sat] Start 3/21/20
4 Set Satellite Mode Set Mode [Sun..Sat] Start 3/11/20
Add Task
Delete Task
Task Usage
Connected to local database: XStudio Local Database

Task Maintenance Display

Adding a New Task

To create a new Task, click on the [**Add Task**] button. A dialog is displayed, containing a list of available task types.

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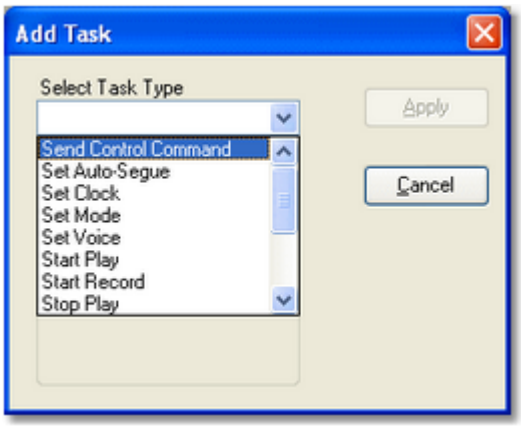


Add Task Dialog

Select the type of task you wish to create and click on the [**Apply**] button. The new task's properties dialog will be displayed. Edit the task properties as appropriate and save the Task by clicking on the [**Apply**] button. The new Task will appear in the tasks table.

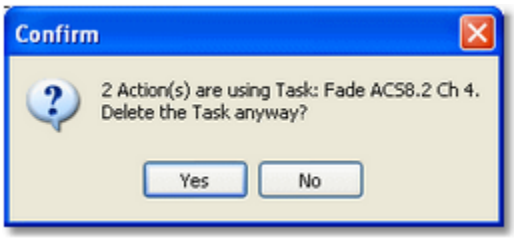
Some task types require an external resource in order for the task to be functional. If no external resources exist in the automation database, you will be prompted to create a new resource before trying to create the selected task type.

Editing a Task

To edit an existing Task, [**Double-Click**] on the task you wish to edit. The appropriate task properties dialog will be displayed. When edits are complete, click on the [**Apply**] button to save the changes.

Deleting a Task

To delete an existing Task, select the Task to be deleted and click on the [**Delete Task**] button. A check is made to see if the Task is used by any Actions. If so, you will be prompted to confirm the deletion.



Task Deletion Confirmation Prompt

Deleting a Task is permanent and cannot be undone! It is highly recommended that ***before*** you delete a Task, you create a task usage report so that you know which Actions, if any, will need to be updated.

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Task Usage Report

A task usage report produces a list of Actions that use a selected Task. This report is useful if you are planning to modify a Task and wish to know how many Actions will be affected, or if you believe the Task is no longer needed and are preparing to delete it.

To generate the report, select a Task and click on the [**Task Usage**] button. The Actions table is scanned and a list of all Actions that use the selected Task is displayed.

Task Usage Dialog

The list can be printed or saved to file if desired. For more information on printing, see the Print Lists topic.

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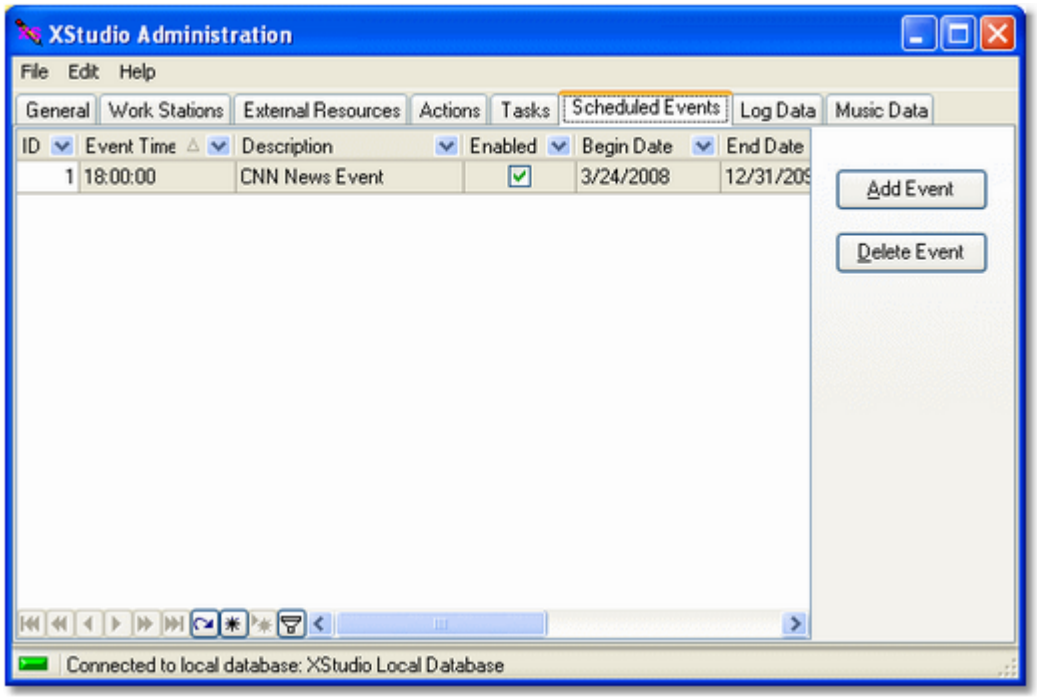
5.1.6 Scheduled Events

Scheduled events are a way of executing an Action (a group of Tasks) at a predetermined time of the day. You can control the execution of a scheduled event in several ways, including disabling the event altogether.



Scheduled Events Maintenance Display

Adding a New Scheduled Event

To create a new Scheduled Event, click on the [**Add Event**] button. The Scheduled Event properties dialog will be displayed. Select the Action to be performed and set other property settings as needed.

> In order to create a scheduled event, at least one Action must exist in the automation database. If there are no Actions, you will be prompted to create one before adding a scheduled event.

Editing a Scheduled Event

To edit an existing event, [**Double-Click**] on the event you wish to edit. The Scheduled Event properties dialog will be displayed. Revise the event properties as desired and click on the the [**Apply**] button to save the changes.

Temporarily Disable an Event

To temporarily disable a scheduled event, select the event you wish to disable and [**Double-Click**] on it to open the Scheduled Event properties dialog. Uncheck the **Event Enabled** property and click on [**Apply**] to save the changes.

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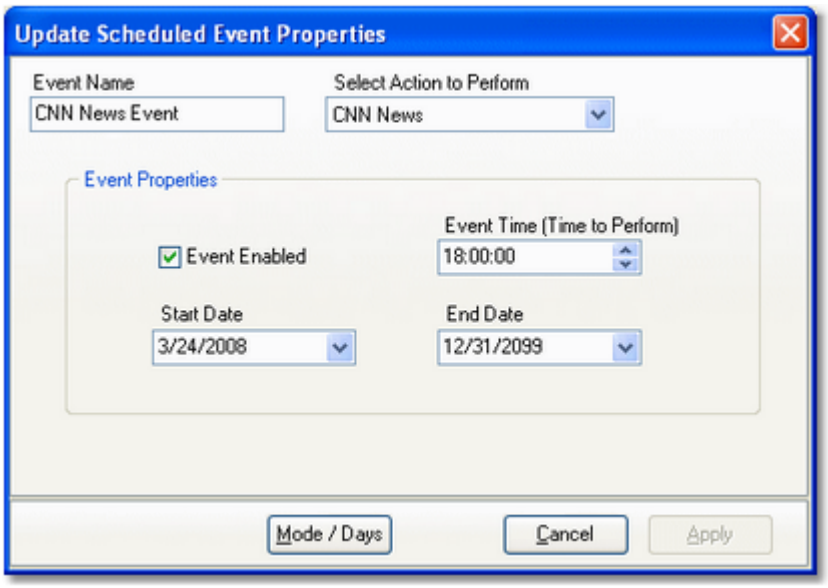
Deleting a Scheduled Event

> ***Deleting a Scheduled Event is permanent and cannot be undone!*** If you are not sure you want to permanently remove an event, temporarily disable the event instead, as described above.

To permanently remove an event from the schedule, select the event and click on the [**Delete Event**] button.

5.1.6.1 Event Properties Dialog

When working with a Scheduled Event, the Event Properties dialog is to used to name the event, select the Action to be performed, set the event execution time, and a date range for which the event will be valid.



Scheduled Event Properties Dialog

Scheduled Event Properties

Items with a check mark in the **REQ** column require user entry, while unchecked items have default values which can optionally be changed.

Property	***REQ***	***Description***
Event Name	✓	The user-friendly name of the event. Maximum length is 30 characters.
Action to Perform	✓	Select the Action to be executed from the dropdown list.
Event Enabled		Events are enabled (checked) as a default. Use this property to temporarily disable the event. If disabled, the event will not execute.
Event Time	✓	The time at which the event is to be executed. Enter the time as

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Property	REQ	Description
		military time in the format hour, minute, seconds.
Start Date		The first date on which the event is valid for execution. The default value when creating a new event is today's date.
End Date		The last date on which the event is valid for execution. The default end date is December 31, 2099.

Advanced Event Properties

As with Tasks, there is a set of advanced execution control properties you can access with the [**Mode/ Days**] button. These additional properties include the XStudio operating mode and days of the week. See the topic on Advanced Task Properties for details on how to use these properties.

The **Hours / Hour Parts** advanced property should be left at the default values with a starting time of midnight (00:00:00) and ending time of 23:59:59. Since a Scheduled Event is executed at a specific time, this property is not particularly meaningful, but ***will be evaluated at run-time*** to establish whether the event is valid. Using the default start and end times ensures that if you change the scheduled event execution time in the future, it will not inadvertently be invalidated when this property is checked.

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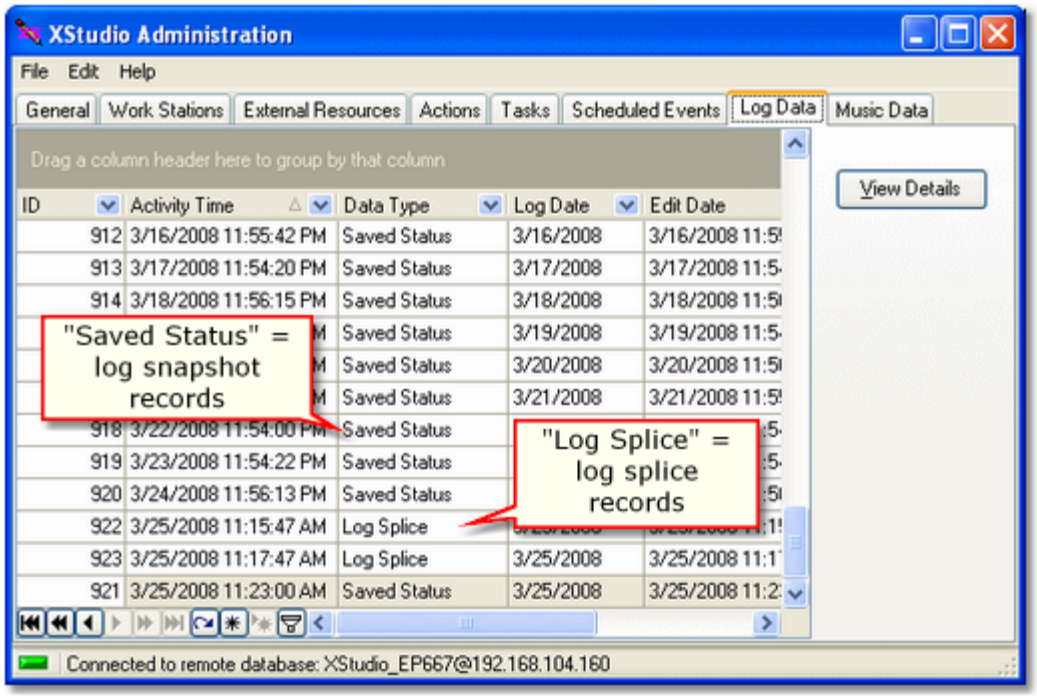
5.1.7 Log Data

The Log Data area contains historical information about program logs. XStudio maintains a table of log information, including snapshots of the log as it is performed throughout the day and a record of all "log splicing" operations - the merging of the current log with a newly-edited log for the same date. Log Splice and Log Snapshot records are automatically maintained for a period of 62 days.


XStudio Administration
File Edit Help
General Work Stations External Resources Actions Tasks Scheduled Events Log Data Music Data
Drag a column header here to group by that column
View Details
ID Activity Time Data Type Log Date Edit Date
912 3/16/2008 11:55:42 PM Saved Status 3/16/2008
913 3/17/2008 11:54:20 PM Saved Status 3/17/2008
914 3/18/2008 11:56:15 PM Saved Status 3/18/2008
Saved Status 3/19/2008
Saved Status 3/20/2008
Saved Status 3/21/2008
Saved Status
919 3/23/2008 11:54:22 PM Saved Status
920 3/24/2008 11:56:13 PM Saved Status
922 3/25/2008 11:15:47 AM Log Splice
923 3/25/2008 11:17:47 AM Log Splice 3/25/2008
921 3/25/2008 11:23:00 AM Saved Status 3/25/2008
"Saved Status" = log snapshot records
"Log Splice" = log splice records
Connected to remote database: XStudio_EP667@192.168.104.160

Log Data Table Display

> Log data records are automatically maintained by XStudio. These records are ***view-only*** and are generally used for troubleshooting or for review of activity that affected the broadcast log.

Log Snapshot Data

A log snapshot is, as it implies, a "snapshot" of the broadcast log (schedule). The snapshot includes all log items as they are organized at the moment the snapshot is taken. Items that have played successfully are noted, along with the time that the item began playing.

A single snapshot record is created and updated for each day. Every time a logged audio item is played successfully, XStudio updates the current-day log snapshot, overwriting the previous snapshot, if one exists.

To review log snapshot information, select the record you wish to view and click on the [**View Details**] button or [**Double-Click**] on the selected record. The Log Status dialog will be displayed.

Log Splice Data

Whenever XStudio detects an updated broadcast log on-disk for the current day, the in-memory log is updated using a technique referred to as "splicing the log".

Since the changed log is the current-day log, XStudio has executed at least a portion of the log. All

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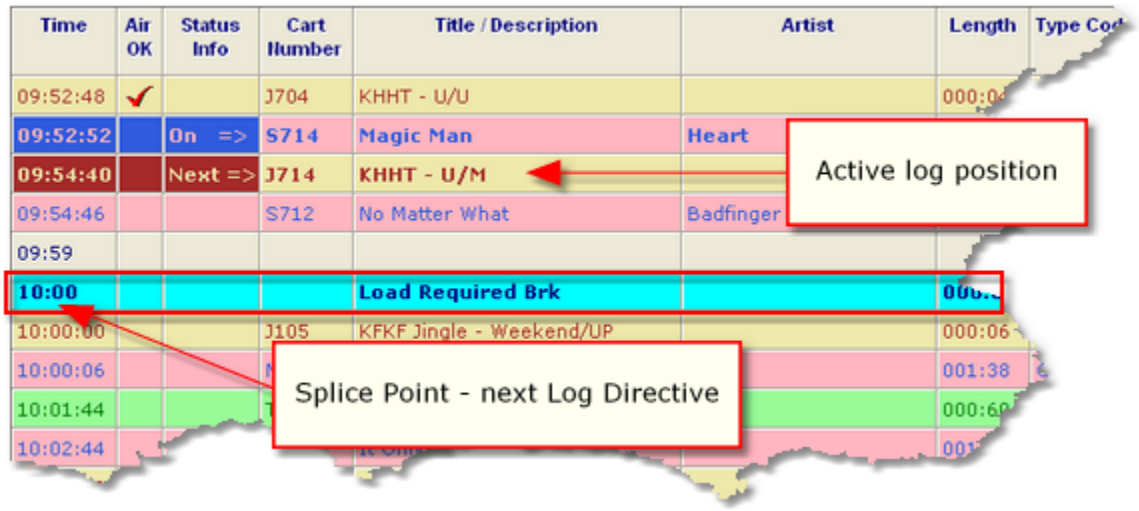
items on the updated log that are at times prior to the current time would not be used, so the executed portion of the log is retained and only content beyond the current log execution point is updated.



Determining Log Splice Point

The point at which the updated log content is "spliced" with the in-memory log is determined by locating the first ***Log Directive*** beyond the current execution point, as shown in the example.

XStudio saves copies of the current in-memory log and updated log each time an updated log is detected and a log splice is performed. Depending on how often the current-day log is revised externally, there could be several log splice records for a given day - one for each time the log was updated from disk.

The log splice records stored in the database can be reviewed to see the changes that occurred - [**Double-Click**] on the record or select it and click on the [**View Details**] button. The Log Splice Comparison dialog will be displayed.

> Log splice comparisons display differences for the ***entire log***, including log elements prior to the splice-point. Differences in the log prior to the splice point were not made a part of the spliced log and are there for reference purposes only.

Viewing Log Data Records

To view details on a log data record, [**Double-Click**] on the record you wish to review. You can also select the record you wish to view and click on the [**View Details**] button. The appropriate detail view dialog will be displayed containing the data for the selected record.

5.1.7.1 Log Status Dialog

The Log Status dialog displays the contents of a log snapshot - the state of log items at the moment the snapshot was taken. Log items successfully played are marked, along with the time the item began playing.

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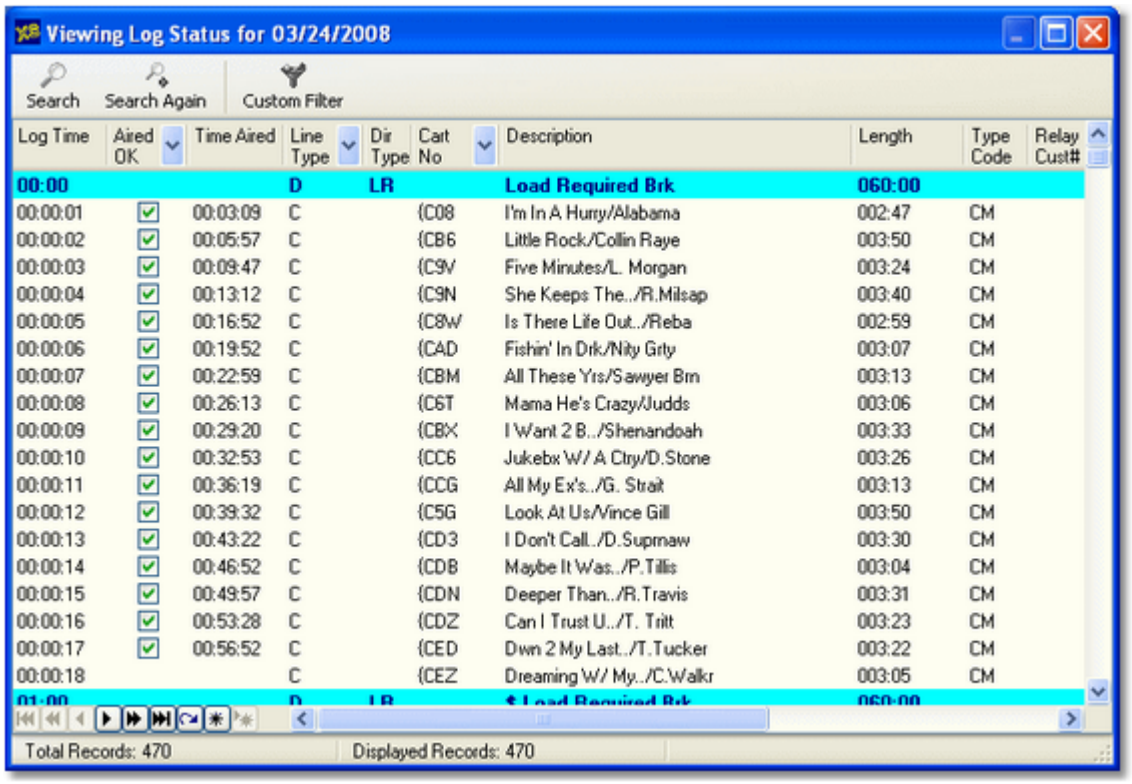
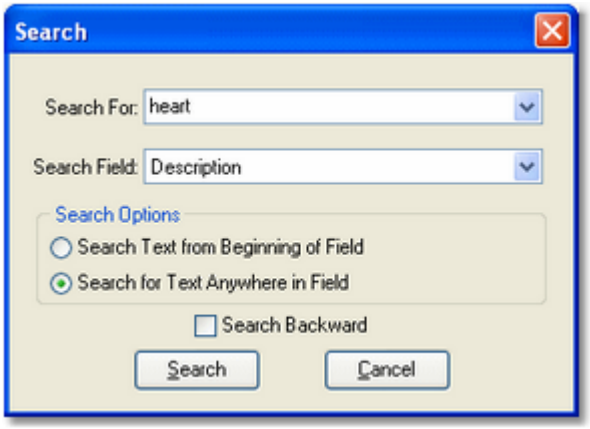

Viewing Log Status for 03/24/2008
Search
Search Again
Custom Filter
Log Time
Aired OK
Time Aired
Line Type
Dir Type
Cart No
Description
Length
Type Code
Relay Cust#
00:00 D LR Load Required Brk 060:00
00:00:01 00:03:09 C (C08 I'm In A Hurry/Alabama 002:47 CM
00:00:02 00:05:57 C (CB6 Little Rock/Collin Raye 003:50 CM
00:00:03 00:09:47 C (C9V Five Minutes/L. Morgan 003:24 CM
00:00:04 00:13:12 C (C9N She Keeps The../R.Milsap 003:40 CM
00:00:05 00:16:52 C (C8W Is There Life Out../Reba 002:59 CM
00:00:06 00:19:52 C (CAD Fishin' In Drk/Nity Grty 003:07 CM
00:00:07 00:22:59 C (CBM All These Yrs/Sawyer Brn 003:13 CM
00:00:08 00:26:13 C (C6T Mama He's Crazy/Judds 003:06 CM
00:00:09 00:29:20 C (CBX I Want 2 B../Shenandoah 003:33 CM
00:00:10 00:32:53 C (CC6 Jukebx W/ A Ctry/D.Stone 003:26 CM
00:00:11 00:36:19 C (CCG All My Ex's../G. Strait 003:13 CM
00:00:12 00:39:32 C (C5G Look At Us/Vince Gill 003:50 CM
00:00:13 00:43:22 C (CD3 I Don't Call../D.Supmaw 003:30 CM
00:00:14 00:46:52 C (CDB Maybe It Was../P.Tillis 003:04 CM
00:00:15 00:49:57 C (CDN Deeper Than../R.Travis 003:31 CM
00:00:16 00:53:28 C (CDZ Can I Trust U../T. Tritt 003:23 CM
00:00:17 00:56:52 C (CED Dwn 2 My Last../T.Tucker 003:22 CM
00:00:18 C (CEZ Dreaming W/ My../C.Walkr 003:05 CM
Total Records: 470
Displayed Records: 470

Log Status Dialog

Log Status information can be useful in a number of ways - for making a quick check of whether an item played or not, producing a list of of all unplayed items and exporting status information to one of several popular file formats for further review.

Searching Log Status Data

You can search the log status data for a particular log item on any of the displayed columns (fields) of information. Click on the [**Search**] button or use the keyboard shortcut [**F11**] to display the search dialog.



Log Status Search Dialog

Enter text representing the item you wish to locate in the **Search For** field and select the field (column)

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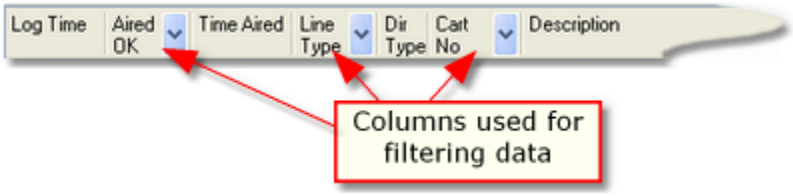
to search from the dropdown **Search Field** list. You can choose to limit the search to find matching text at the beginning of the field only or anywhere in the search field and optionally search backward through the log.

Click on the [**Search**] button to execute the search. If the item you're looking for is found, the log record is highlighted. To repeat the search, click on the [**Search Again**] button or use the keyboard shortcut [**F12**]. A message is displayed when no further matches are found.

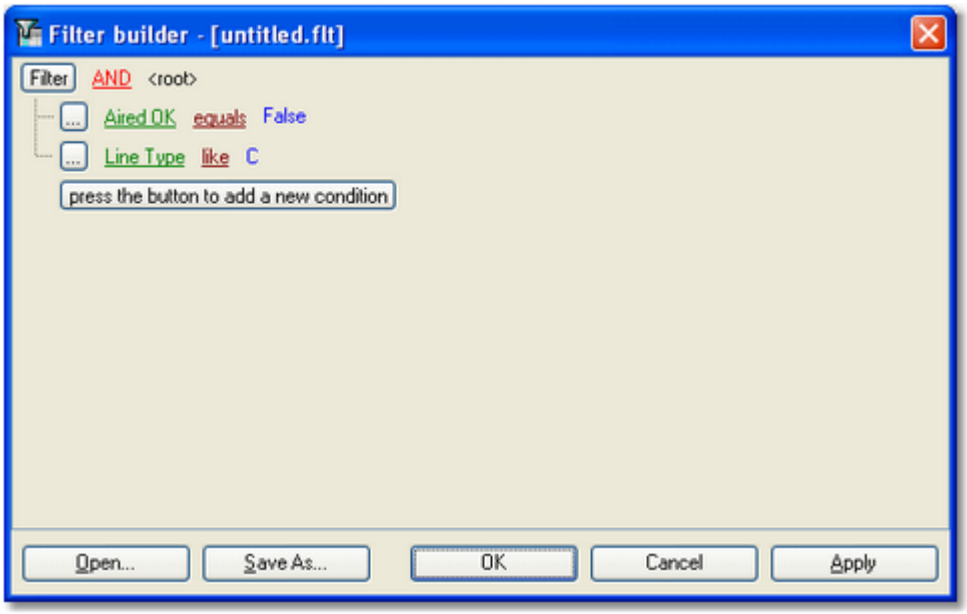
Search criteria, including the text of the last several items searched, the search field, search type and search direction, is retained when you close the search dialog and restored the next time you perform a search.

Filtering Log Status Data

You can filter displayed log status data on selected columns (fields) to drill down to just those log items you are interested in. Columns displaying a dropdown list in the column title can be quickly filtered by selecting an item from the dropdown list.



For more complex data filtering, click on the [**Custom Filter**] button to display a filter building dialog. You can create some very complex filters using the filter builder - since filtering the data does not affect the underlying information, feel free to experiment.



Filter Building Dialog

Filters you create can be saved to disk and reused on demand. Use the [**Save As**] button to save a filter, use the [**Open**] button to load a previously saved filter. The XStudio installation includes one or more of the most popular filters.

When you have created the filter and applied it to the snapshot data, only those records that match the

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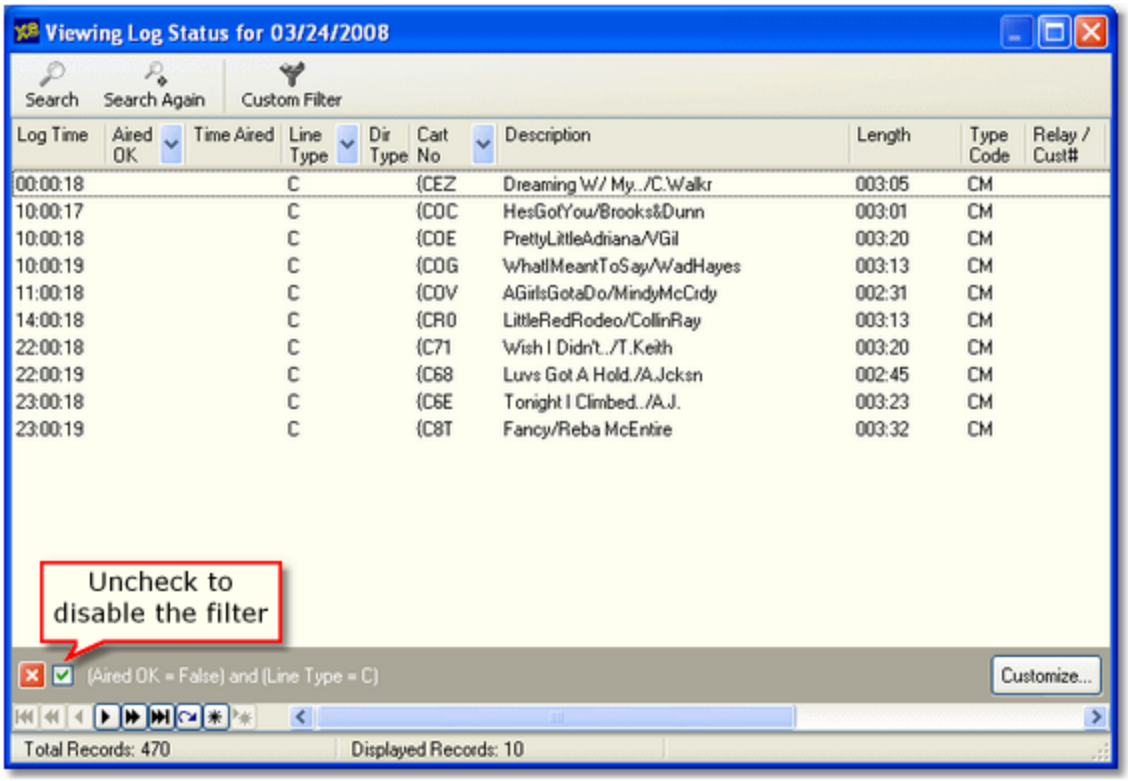
criteria you established are displayed.

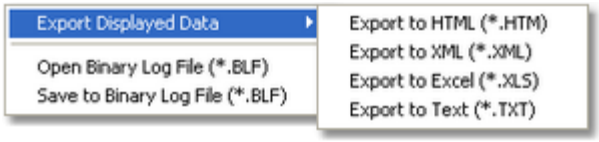

Viewing Log Status for 03/24/2008
Search
Search Again
Custom Filter
Log Time
Aired OK
Time Aired
Line Type
Dir Type
Cart No
Description
Length
Type Code
Relay / Cust#
00:00:18 C (CEZ Dreaming W/ My../C.Walkr 003:05 CM
10:00:17 C (COC HesGotYou/Brooks&Dunn 003:01 CM
10:00:18 C (COE PrettyLittleAdriana/VGil 003:20 CM
10:00:19 C (COG WhatIMeantToSay/WadHayes 003:13 CM
11:00:18 C (COV AGirlsGotaDo/MindyMcCrdy 002:31 CM
14:00:18 C (CR0 LittleRedRodeo/CollinRay 003:13 CM
22:00:18 C (C71 Wish I Didn't../T.Keith 003:20 CM
22:00:19 C (C68 Luvs Got A Hold./A.Jcksn 002:45 CM
23:00:18 C (C6E Tonight I Climbed../A.J. 003:23 CM
23:00:19 C (C8T Fancy/Reba McEntire 003:32 CM
Uncheck to disable the filter
(Aired OK = False) and (Line Type = C)
Customize...
Total Records: 470
Displayed Records: 10

Log Status with a Filter Applied

The example filter results shown display only carts (audio items) that were on the log but did not play. You can turn the filter on or off by clicking on the filter status checkbox.

Exporting Log Status Data

Displayed log status data can be exported for further review, if desired, to several popular formats. To export log status information, [**Right-Click**] on the status information to display a context menu.


Export Displayed Data
Open Binary Log File (*.BLF)
Save to Binary Log File (*.BLF)
Export to HTML (*.HTM)
Export to XML (*.XML)
Export to Excel (*.XLS)
Export to Text (*.TXT)

Log Status Export Context Menu

Select the type of export you wish to make. You'll be prompted for a file name and location for the export.

The exported Log Status information will contain ***displayed records only***. This makes the export functionality very flexible, as you can export only the information that requires further review.

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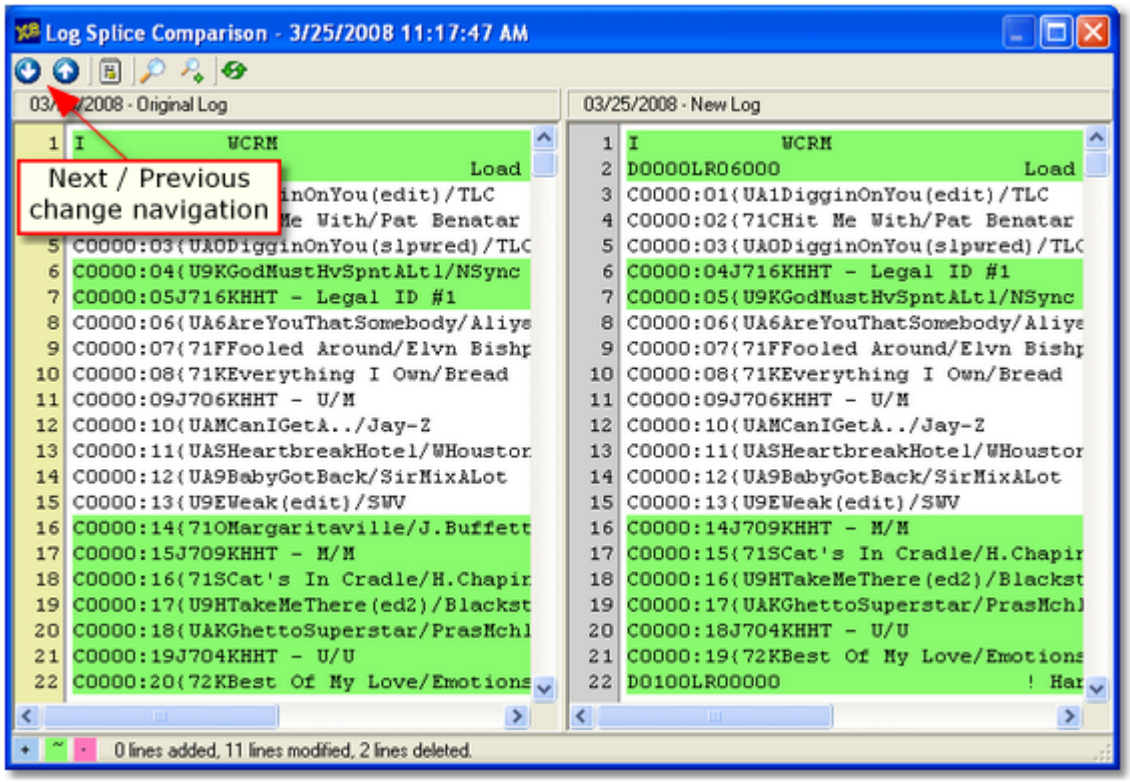
5.1.7.2 Log Splice Comparison Dialog

Each time an updated log is "spliced" (merged) with the active in-memory log, a record containing the original log and the updated log is stored in the database. The Log Splice Comparison dialog shows you the differences between the two logs.


Log Splice Comparison - 3/25/2008 11:17:47 AM
03/25/2008 - Original Log
03/25/2008 - New Log
Next / Previous change navigation
0 lines added, 11 lines modified, 2 lines deleted.

Log Splice Comparison - All Data

When initially displayed, all log records for the original log and the new log are shown, side-by-side. Unique colors are used for changed lines, added lines and deleted lines. A status bar contains the color key, along with the number of items that fall into each of the change categories.

You can jump to changes quickly using the **Next / Previous** change buttons, as shown. As you move through the comparison display, the two logs are synchronized for ease in reviewing differences.

Displaying Changes Only

To display just the changes between the two logs, click on the [**Differences Only**] button, represented with a spiral notepad icon.

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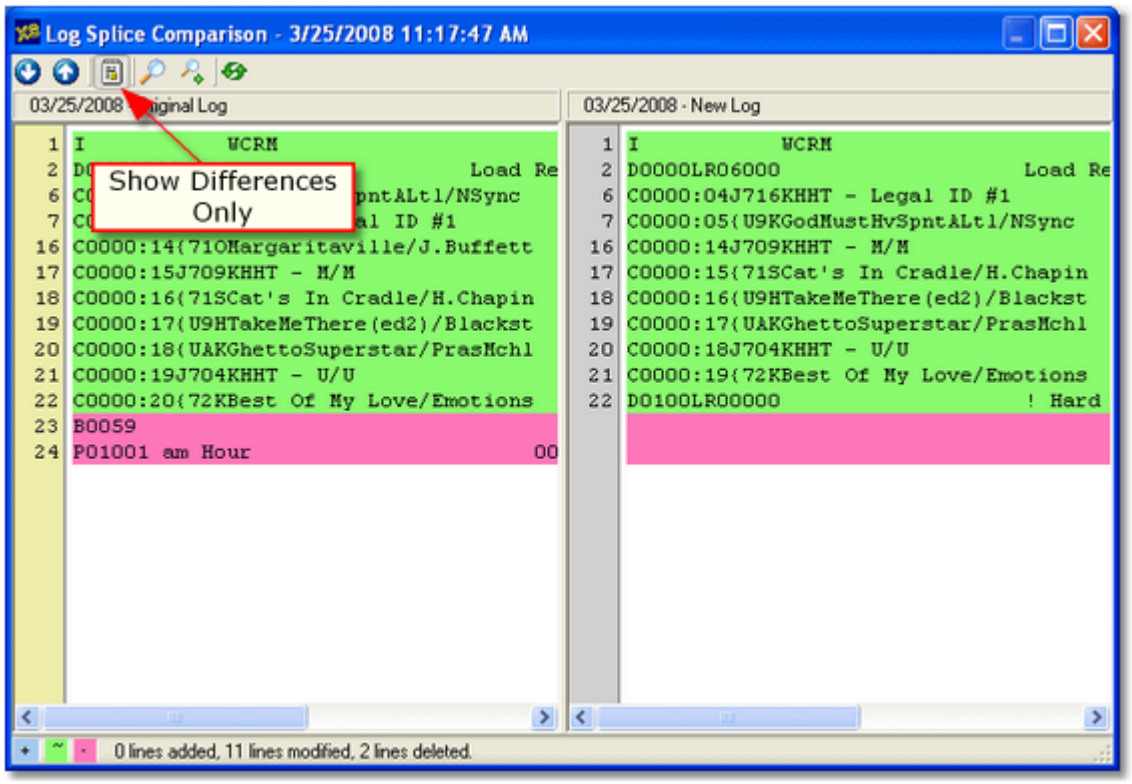
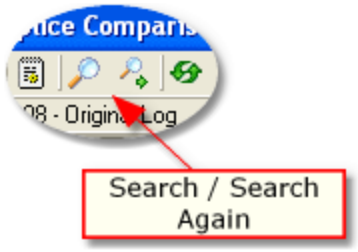

Log Splice Comparison - 3/25/2008 11:17:47 AM
Show Differences Only
03/25/2008 - New Log
0 lines added, 11 lines modified, 2 lines deleted.

Log Splice Comparison - Differences Only

As shown in the example, only log records (lines) that do not match are displayed, condensing the material to review considerably.

Searching the Logs

Searches for specific text can be performed on either log. Select one of the displayed logs - simply clicking anywhere in the log lines will do the trick. Then, click on either the [**Search**] or [**Search Again**] button.



If this is your first search, a search dialog is displayed.

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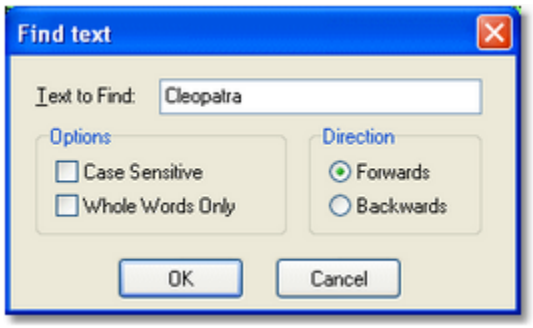

Search Dialog

Fill in the text to search for and select any options you wish to use to restrict the search. To search again, click on the [**Search Again**] button, which will automatically repeat your last search.

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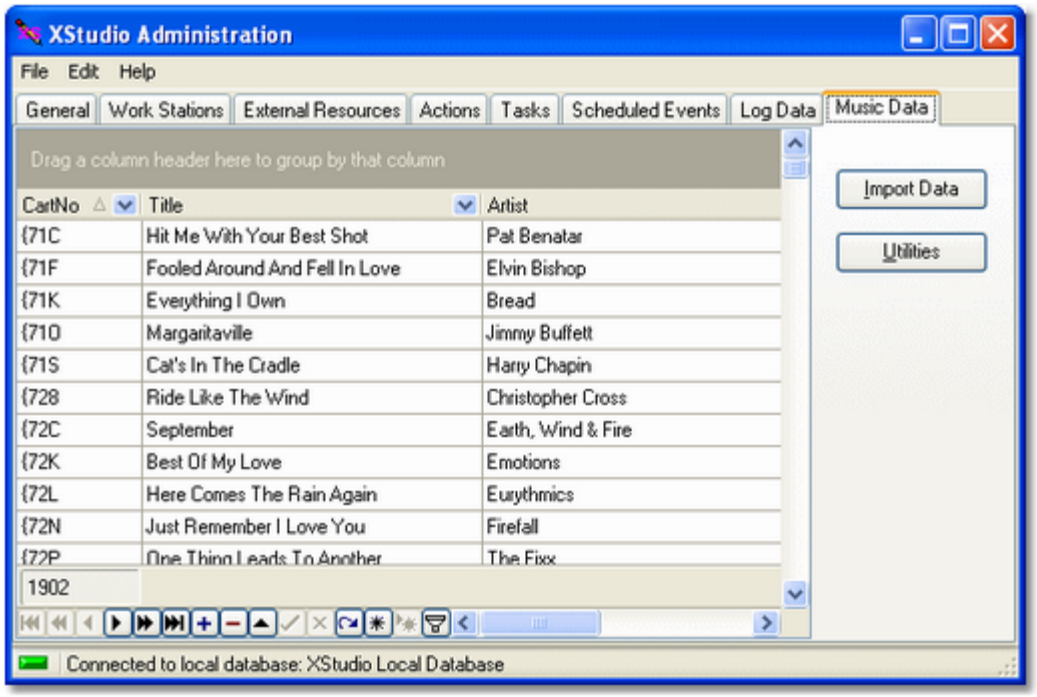
5.1.8 Music Data

You can display song title and artist information on the XStudio broadcast log if you either manually create or import the information into the music data table. As a log is loaded or refreshed, the music database is searched for matching cart numbers and if found, the song title and artist are added to the log record for display purposes.


XStudio Administration
File Edit Help
General Work Stations External Resources Actions Tasks Scheduled Events Log Data Music Data
Drag a column header here to group by that column
CartNo Title Artist
{71C Hit Me With Your Best Shot Pat Benatar
{71F Fooled Around And Fell In Love Elvin Bishop
{71K Everything I Own Bread
{71O Margaritaville Jimmy Buffett
{71S Cat's In The Cradle Harry Chapin
{728 Ride Like The Wind Christopher Cross
{72C September Earth, Wind & Fire
{72K Best Of My Love Emotions
{72L Here Comes The Rain Again Eurythmics
{72N Just Remember I Love You Firefall
{72P One Thing Leads To Another The Fixx
1902
Import Data
Utilities
Connected to local database: XStudio Local Database

Music Database Maintenance Display

You can manually create and edit song records, but it is by far easier to import the information and use the editing functionality in this area only when needed for a quick change or correction. There are utility functions available, including configuring automatic updates of the music data, to revise the artist and title information in bulk for appearance purposes, and to export music data from the table.

Importing Music Data

Importing song title and artist information is a two-step process. Because most music scheduling systems do not allow access to song data directly, you must first export the music library to a specially formatted file and then use that file when importing.

> See the topic on Exporting Data from your Music Scheduling System for details on exporting song title and artist information from popular music scheduling systems.

When you have a library file ready for import, click on the [**Import Data**] button to display the music system selection dialog, which is used to determine the type of music data file that will be imported.

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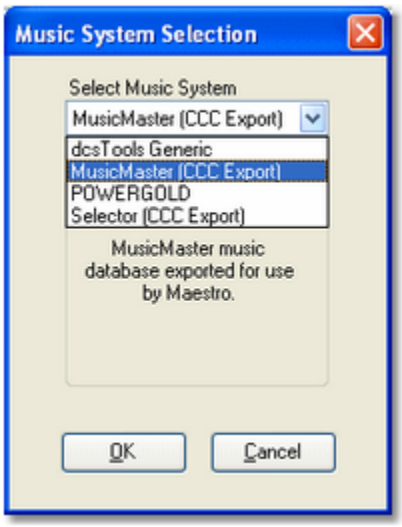

Choose the type of file you will be importing from the dropdown list of available types and click on the [**OK**] button. You'll be prompted to select the file to import and the import process will begin. Should the Music Database already contain records, you will be prompted to choose whether you wish to append the imported records to the existing music records or simply replace all existing music records with the imported information. During the import process, a progress bar is displayed.

Music Import Progress Display

When the import is complete, the imported music data is displayed, ready to be reviewed. If errors occurred during the import process, a message will appear, offering the option of viewing details of the errors that occurred. You will also be prompted whether or not to use the import settings to enable auto-import of music data.

Some music databases may have some duplicate cart numbers. This occurs if cart numbers are erroneously assigned or sometimes where a cart number is reused when a song is taken out of the play rotation. Duplicate cart number handling is different when appending records to existing data versus the imported data replacing all existing music data.

1) **Appending Records**. If duplicate carts are found, each instance of the duplicate updates the music record. The effect is that the information of the **last duplicate found** in the source data becomes the content of the music record.

2) **Inserting Records**. If duplicate carts are found, only the first record encountered during the import is placed in the database. All others are discarded.

Utility Functions

The [**Utilities**] button provides a dropdown menu containing utility functions for manipulating the music data. Many music directors have a habit of entering song information in their music scheduling system

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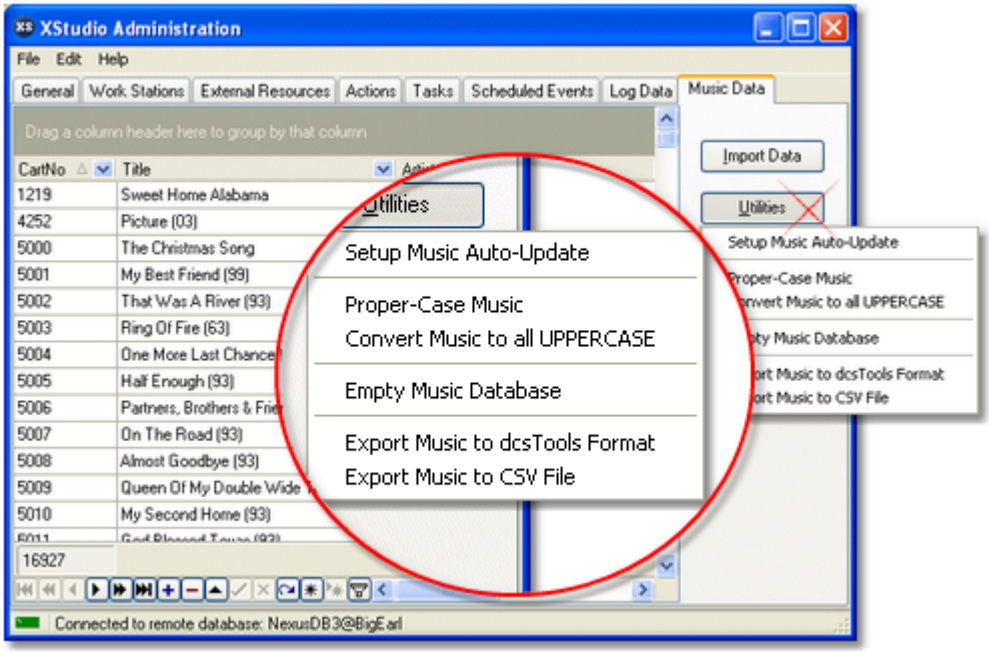
as all uppercase text. Others may be inconsistent in the way data is entered. Use the utilities to format the song title and artist fields either as proper-cased or all uppercase text.


XStudio Administration
File Edit Help
General Work Stations External Resources Actions Tasks Scheduled Events Log Data Music Data
Drag a column header here to group by that column
CartNo Title
1219 Sweet Home Alabama
4252 Picture (03)
5000 The Christmas Song
5001 My Best Friend (99)
5002 That Was A River (93)
5003 Ring Of Fire (63)
5004 One More Last Chance
5005 Half Enough (93)
5006 Partners, Brothers & Fri
5007 On The Road (93)
5008 Almost Goodbye (93)
5009 Queen Of My Double Wide
5010 My Second Home (93)
16927
Import Data
Utilities
Setup Music Auto-Update
Proper-Case Music
Convert Music to all UPPERCASE
Empty Music Database
Export Music to dcsTools Format
Export Music to CSV File
Connected to remote database: NexusDB3@BigEarl

Music Database Utilities Menu

Setup Music Auto-Update

When music is manually imported, you are presented with the option to enable auto-update of changed source music data. You can use this menu item to change auto-update settings, including enabling or disabling auto-update. For more information on auto-update of music data, see the topic Setup Auto-Update Music Data.

Proper-Case Music

Many times, the imported music information will have been entered in capital letters. For instance, a song title may appear as "THE WAY WE WERE" rather than the more visually attractive "The Way We Were". Select the **Proper-Case Music** menu item to update all music records. The first letter of each word in the song title and artist name fields will be capitalized and all other letters of the word in lower case.

The process is not perfect. There are a myriad number of possibilities in the proper case of artist names, for instance. The algorithm that determines capitalization of a word cannot consider all of the possibilities. It is intended as a starting point that will take care of the majority of the words. You should look through the music after running this utility to proof the results.

Uppercase Music

As the name implies, when you select the menu item **Convert Music to UPPERCASE**, all song titles and artist names are updated so that all letters are upper-case.

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Empty Music Database

Should the need arise, you can remove all music records in the database. Select the **Empty Music Database** menu item and after confirming your intent, all song title and artist information is removed from the database.

Export Music to dcsTools Format

Should the need arise, you can export the music data to a file for use with other dcsTools products that use song title and artist information. You are prompted for a file name and location. The exported file is a custom file type usable by other dcsTools applications. The export file contains the cart number, song title and artist information.

Export Music to CSV File

Selecting this menu option exports the music database information to a generic comma-separated values (CSV) format that can be used by many different software programs. During the export, you are prompted for a file name and location. When exporting to this format, only the cart number, song title and artist fields are written to the CSV file.

Add, Edit, Delete Music Records Manually

Edit a record. Any of the displayed music records can be edited. Click on the item you wish to edit, then click again or press the [**F2**] key to begin editing. When you have finished editing, click on the [**Post**] button in the data navigator.

Add a record. To add a new music record, press the [**Insert**] key or click on the Insert button in the data navigator. When you have filled in the cart number, title and artist information, click on the [**Post**] button in the data navigator. The Misc field is optional and is used during import to timestamp when the record was added or updated.

Delete a record. Select the music record you wish to delete and press the [**Delete**] key or click on the Delete button in the data navigator. You will be prompted to confirm the deletion.

5.1.8.1 Exporting Data from your Music Scheduling System

In order to be able to import music information with XStudio, you must export the information from your music scheduling system to a format that XStudio can understand.

In the cases of Selector and MusicMaster, the exported data will be a specially formatted text file. For POWERGOLD, the exported data is in binary format.

If you have used Maestro at one time or another and have exported music for use by that system, the instructions and resulting output file for the popular music scheduling systems are nearly identical. Music exports created for Maestro can be imported without modification.

5.1.8.1.1 Exporting MusicMaster

The Windows version of MusicMaster has an export design editor that you can use to create customized exports for your music library. The design editor includes a feature for importing pre-made export designs. Rather than having you build the needed export design manually, we've provided a design template you can import, greatly simplifying the process.

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The design template file is named "**MusicMaster_CCC_MS2ASC.xml**" and is placed in the folder (directory) where our application is installed. Locate this file and follow the steps outlined below.

If you are using the DOS version of MusicMaster, refer to the the MusicMaster DOS Export topic for details on exporting your music library instead of these instructions.

Steps to Load and Use the Export Design

1. Copy the ***MusicMaster_CCC_MS2ASC.xml*** file to your MMWin folder.
2. In the MMWin folder, find and open **MMExportDesignEditor.exe**.
3. Select your database and click **Open**.
4. Switch the ***Design Type*** to **Library Export** via the drop-down list.
5. Click **New**. Do not name or adjust the settings on the following screen - just click **OK**.
6. Click **File | Import**, select the ***MusicMaster_CCC_MS2ASC.xml*** file and click **Open**.
7. Click **File | Save**, then **File | Exit**.
8. In MusicMaster, open the station data and go to **Dataset | Library | Export**. Here, you'll see the **New CCC MS2ASC** export design. Select it, check the categories you wish to export, set your path and file name (we've set them initially to a default value) and click **OK** to export the file.

MusicMaster_CCC_MS2ASC.xml Layout

The sample export design template we've provided contains the following:

```
XMLOptions version="1.0" created="2013-10-30T13:47:55" updated="2013-10-30T13:47:56">
  <XDF>
    <properties>
      <version>101</version>
      <name>New CCC MS2ASC</name>
      <design_type>200</design_type>
      <output_type>1</output_type>
      <page_count>3</page_count>
      </properties>
    <design>
      <properties>
        <design_version>101</design_version>
        <output_type>1</output_type>
        <output_path>R:\DCS\aStation</output_path>
        <output_file>LIBRARY.ASC</output_file>
      </properties>
      </design>
    <pages>
      <page1>
        <properties>
          <name>Song</name>
          <user_name></user_name>
          <element_type>220</element_type>
          <field_count>40</field_count>
        </properties>
        <field1>
          <name>Fixed Text</name>
          <item_id>-10105</item_id>
          <data_type>0</data_type>
          <properties>
            <len>1</len>
            <text>@</text>
          </properties>
        </field1>
        <field2>
```

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```
        <name>Maestro #</name>
        <item_id>112</item_id>
        <data_type>1</data_type>
        <properties>
          <comment>DSC #</comment>
        </properties>
      </field2>
      <field3>
        <name>Spacer</name>
        <item_id>-10102</item_id>
        <data_type>0</data_type>
        <properties>
          <len>2</len>
        </properties>
      </field3>
      <field4>
        <name>Artist</name>
        <item_id>101</item_id>
        <data_type>1</data_type>
        <properties>
          <len>35</len>
          <comment>Artist</comment>
        </properties>
      </field4>
      <field5>
        <name>Spacer</name>
        <item_id>-10102</item_id>
        <data_type>0</data_type>
        <properties>
          <len>2</len>
        </properties>
      </field5>
      <field6>
        <name>Title</name>
        <item_id>102</item_id>
        <data_type>1</data_type>
        <properties>
          <len>35</len>
          <comment>Title</comment>
        </properties>
      </field6>
      <field7>
        <name>Spacer</name>
        <item_id>-10102</item_id>
        <data_type>0</data_type>
        <properties>
        </properties>
      </field7>
      <field8>
        <name>Line Break</name>
        <item_id>-10103</item_id>
        <data_type>0</data_type>
        <properties>
        </properties>
      </field8>
      <field9>
        <name>Run Time</name>
        <item_id>12</item_id>
        <data_type>13</data_type>
        <properties>
          <comment>Run Time</comment>
        </properties>
      </field9>
      <field10>
        <name>Fixed Text</name>
        <item_id>-10105</item_id>
        <data_type>0</data_type>
        <properties>
          <len>3</len>
          <text>.00</text>
        </properties>
      </field10>
      <field11>
        <name>Intro</name>
        <item_id>105</item_id>
```

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```
        <data_type>1</data_type>
        <properties>
          <len>2</len>
          <comment>Intro</comment>
        </properties>
      </field11>
      <field12>
        <name>Spacer</name>
        <item_id>-10102</item_id>
        <data_type>0</data_type>
        <properties>
        </properties>
      </field12>
      <field13>
        <name>Ending</name>
        <item_id>106</item_id>
        <data_type>1</data_type>
        <properties>
          <len>2</len>
          <comment>Ending</comment>
        </properties>
      </field13>
      <field14>
        <name>Category</name>
        <item_id>3</item_id>
        <data_type>99</data_type>
        <properties>
          <comment>Category</comment>
        </properties>
      </field14>
      <field15>
        <name>Spacer</name>
        <item_id>-10102</item_id>
        <data_type>0</data_type>
        <properties>
          <len>15</len>
        </properties>
      </field15>
      <field16>
        <name>Gender</name>
        <item_id>108</item_id>
        <data_type>34</data_type>
        <properties>
          <len>2</len>
          <comment>Demographics</comment>
        </properties>
      </field16>
      <field17>
        <name>Power</name>
        <item_id>110</item_id>
        <data_type>31</data_type>
        <properties>
          <len>3</len>
          <comment>Sound</comment>
        </properties>
      </field17>
      <field18>
        <name>Spacer</name>
        <item_id>-10102</item_id>
        <data_type>0</data_type>
        <properties>
          <len>14</len>
        </properties>
      </field18>
      <field19>
        <name>Fixed Text</name>
        <item_id>-10105</item_id>
        <data_type>0</data_type>
        <properties>
          <text>M12345678901N12345678901</text>
        </properties>
      </field19>
      <field20>
        <name>Spacer</name>
        <item_id>-10102</item_id>
```

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```
      <data_type>0</data_type>
      <properties>
        <len>2</len>
      </properties>
    </field20>
    <field21>
      <name>Fixed Text</name>
      <item_id>-10105</item_id>
      <data_type>0</data_type>
      <properties>
        <len>1</len>
        <text>.</text>
      </properties>
    </field21>
    <field22>
      <name>Line Break</name>
      <item_id>-10103</item_id>
      <data_type>0</data_type>
      <properties>
      </properties>
    </field22>
    <field23>
      <name>Fixed Text</name>
      <item_id>-10105</item_id>
      <data_type>0</data_type>
      <properties>
        <text>M12345678901N12345678901</text>
      </properties>
    </field23>
    <field24>
      <name>Fixed Text</name>
      <item_id>-10105</item_id>
      <data_type>0</data_type>
      <properties>
        <text>M12345678901N12345678901</text>
      </properties>
    </field24>
    <field25>
      <name>Fixed Text</name>
      <item_id>-10105</item_id>
      <data_type>0</data_type>
      <properties>
        <text>M12345678901N12345678901</text>
      </properties>
    </field25>
    <field26>
      <name>Spacer</name>
      <item_id>-10102</item_id>
      <data_type>0</data_type>
      <properties>
        <len>7</len>
      </properties>
    </field26>
    <field27>
      <name>Fixed Text</name>
      <item_id>-10105</item_id>
      <data_type>0</data_type>
      <properties>
        <len>1</len>
        <text>.</text>
      </properties>
    </field27>
    <field28>
      <name>Line Break</name>
      <item_id>-10103</item_id>
      <data_type>0</data_type>
      <properties>
      </properties>
    </field28>
    <field29>
      <name>Fixed Text</name>
      <item_id>-10105</item_id>
      <data_type>0</data_type>
      <properties>
        <text>M12345678901N12345678901</text>
```

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```
      </properties>
    </field29>
    <field30>
      <name>Fixed Text</name>
      <item_id>-10105</item_id>
      <data_type>0</data_type>
      <properties>
        <text>M12345678901N12345678901</text>
      </properties>
    </field30>
    <field31>
      <name>Fixed Text</name>
      <item_id>-10105</item_id>
      <data_type>0</data_type>
      <properties>
        <len>24</len>
        <text>M12345678901N12345678901</text>
      </properties>
    </field31>
    <field32>
      <name>Spacer</name>
      <item_id>-10102</item_id>
      <data_type>0</data_type>
      <properties>
        <len>7</len>
      </properties>
    </field32>
    <field33>
      <name>Fixed Text</name>
      <item_id>-10105</item_id>
      <data_type>0</data_type>
      <properties>
        <len>1</len>
        <text>.</text>
      </properties>
    </field33>
    <field34>
      <name>Line Break</name>
      <item_id>-10103</item_id>
      <data_type>0</data_type>
      <properties>
      </properties>
    </field34>
    <field35>
      <name>Spacer</name>
      <item_id>-10102</item_id>
      <data_type>0</data_type>
      <properties>
        <len>79</len>
      </properties>
    </field35>
    <field36>
      <name>Fixed Text</name>
      <item_id>-10105</item_id>
      <data_type>0</data_type>
      <properties>
        <len>1</len>
        <text>.</text>
      </properties>
    </field36>
    <field37>
      <name>Line Break</name>
      <item_id>-10103</item_id>
      <data_type>0</data_type>
      <properties>
      </properties>
    </field37>
    <field38>
      <name>Spacer</name>
      <item_id>-10102</item_id>
      <data_type>0</data_type>
      <properties>
        <len>79</len>
      </properties>
    </field38>
```

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```
        <field39>
          <name>Fixed Text</name>
          <item_id>-10105</item_id>
          <data_type>0</data_type>
          <properties>
            <len>1</len>
            <text>.</text>
          </properties>
        </field39>
        <field40>
          <name>Line Break</name>
          <item_id>-10103</item_id>
          <data_type>0</data_type>
          <properties>
          </properties>
        </field40>
      </page1>
      <page2>
        <properties>
          <name>File Header</name>
          <user_name></user_name>
          <element_type>201</element_type>
          <field_count>0</field_count>
        </properties>
      </page2>
      <page3>
        <properties><name>File Footer</name>
        <user_name></user_name>
        <element_type>211</element_type>
        <field_count>0</field_count>
        </properties>
      </page3>
    </pages>
  </XDF>
</XMLOptions>
```

5.1.8.1.1.1 MusicMaster DOS Export

Users of MusicMaster's original DOS program need to generate a file named **LIBRARY.ASC** with the MusicMaster **MS2ASC** utility. The resulting LIBRARY.ASC file will then need to be copied to a location where XStudio can retrieve it for import. MS2ASC.EXE uses a file that the user creates and saves as MS2ASC.DEF. This is the same layout used to create a MAESTRO.MDB file. If you have created this file for Maestro, you can use it for XStudio as well.

MS2ASC.DEF Layout

The typical MS2ASC file contains the following information -- notes in **[ ]** are for your information and are not part of the file.

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```
I:\DCS\[Path that you want the LIBRARY.ASC file exported to]
99,@    ["99," allows you to enter custom text, in this case we're starting the file with "(
1,1,4  [Cart number, start with the first character in the field and use 4 characters]
99      ["99" is a single blank space]
99
2       [Artist Name with no limit to the number of characters]
99
99
3       [Song Title]
99
98      [Carriage Return/Line Feed]
22      [Runtime (mm:ss)]
99,.0   [the following two lines will add ".00" to the end of the Runtime]
99,0
5,1,2   [Intro Time]
99
6,1,2   [Ending Type]
30      [Category Letter Code]
31      [Category File Number]
32      [Complete File Number]
99
99
99
99
99
8,2     [Gender Codes]
10      [Power Codes]
7       [Sound Codes]
77,1,7  [Theme Code 7 (?) beginning with the first though 7th character]
78,1,7  [Theme Code 8 (?) beginning with the first though 7th character]
99,M12345678901N12345678901  .  [Note: after the last 1 there are two spaces and a period]
98
99,M12345678901N12345678901
99,M12345678901N12345678901
99,M12345678901N12345678901       . [Note: after the last 1 there are 7 spaces and a period
98
99,M12345678901N12345678901
99,M12345678901N12345678901
99,M12345678901N12345678901       . [Note: after the last 1 there are 7 spaces and a period
98
99,     [Custom Text in this case is 79 blank spaces followed by a period ( see below)]
98
99,                                                                                .
```

MusicMaster Song Field ID Numbers

For convenience, here's a list of published field numbers used by MusicMaster. You may wish to double-check your MusicMaster documentation to see if there are any recent changes.

ID	Field Description	Length
0	Sound Code or Gender Code Translation	See Notes
1	Cart Number	5
2	Artist Name	35
3	Song Title	35
4	Album Title	64
5	Intro Time	8
6	Ending Type	4
7	Sound Codes	5

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ID	Field Description	Length
8	Gender Codes	5
9	Tempo Codes	3
10	Power Codes	3
11	Like Score	2
12	Burn Score	2
13	Match Field	3
14	Harmonic Song Keys	2
15	First Non-Blank Artist Keyword	6
16	Title TWord	6
17	Disc Number	8
18	Mark Status	1
19	Composer Name	64
20	Publishing Company	64
21	Arranger Name	64
22	Runtime (mm:ss)	5
23	Daypart Codes	7
24	Add Date (mm-dd-yyyy)	10
25	Test Date (mm-dd-yyyy)	10
26	Last Move Date (mm-dd-yyyy)	10
27	Last Move Category	1
28	Plays In Category	5
29	Index Number	6
30	Category Letter Code	1
31	Category File Number (ffff)	4
32	Complete File Number (c/ffff)	6
33	Simulcast Pointer	6
34	Plays in Library	5
35	Content Flags	8
36	Notes Field	10
37	License Codes	10
38	Record Company	10

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ID	Field Description	Length
39	Record Order Number	10
40	Artist Keyword 1	6
41	Artist Keyword 2	6
42	Artist Keyword 3	6
43	Artist Keyword 4	6
44	Artist Keyword 5	6
50	Air Date (mm-dd-yyyy) (Music Logs Only)	10
51	Air Time (hh:mm:ss 24hr Clock) (Music Logs Only)	8
52	Weekday Code (1-7 Sunday = 1) (Music Logs Only)	1
53	Weekday Text Name (Music Logs Only)	3
54	Running in Seconds	4
55	Runtime (No Leading Zero)	5
56	Packet Status (X of Y)	8
57	Packet Status (PN)	2
58	Category/File Number/Packet (c/fffPN)	8
60	Chart Position – This Week	2
61	Chart Position – Last Week	2
62	Chart Position – Two Weeks Ago	2
63	Total Weeks on Chart	2
64	Peak Chart Position	2
65	Weeks at Peak Position	2
66	Chart Peak Date (mm-dd-yyyy)	10
67	Year End Ranking	4
68	Chart Debut Date (mm-dd-yyyy)	10
69	Chart Note	8
70	Playlist Rotation	8
71	Theme Code 1	32
72	Theme Code 2	32
73	Theme Code 3	32
74	Theme Code 4	32
75	Theme Code 5	32

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ID	Field Description	Length
76	Theme Code 6	32
77	Theme Code 7	32
78	Theme Code 8	32
79	First Non-Blank Theme Code	32
80	Fixed Trivia Line	64
81	Rotating Trivia Line 1	64
82	Rotating Trivia Line 2	64
83	Rotating Trivia Line 3	64
84	Rotating Trivia Line 4	64
86	Rotating Trivia Line 1 – Kill Date (mm-dd-yyyy)	10
87	Rotating Trivia Line 2 – Kill Date (mm-dd-yyyy)	10
88	Rotating Trivia Line 3 – Kill Date (mm-dd-yyyy)	10
89	Rotating Trivia Line 4 – Kill Date (mm-dd-yyyy)	10
90	Active Trivia Line	64
91	Memo	See Notes
98	Carriage Return/Line Feed	2
99	Blank Space or Custom Text	See Notes
101	Song Rest In Hours	4
102	Auto Move 1 – Date (mm-dd-yyyy)	10
103	Auto Move 2 – Date (mm-dd-yyyy)	10
104	Auto Move 3 – Date (mm-dd-yyyy)	10
105	Auto Move 4 – Date (mm-dd-yyyy)	10
106	Auto Move 1 – Category	1
107	Auto Move 2 – Category	1
108	Auto Move 3 – Category	1
109	Auto Move 4 – Category	1
110	Move History 1 – Date (mm-dd-yyyy)	10
111	Move History 1 – Category	1
112	Move History 2 – Date (mm-dd-yyyy)	10
113	Move History 2 – Category	1
114	Move History 3 – Date (mm-dd-yyyy)	10

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ID	Field Description	Length
115	Move History 3 – Category	1

Notes

1. **Sound And Gender Code Translation Fields**. A Sound and Gender Code Translation Field can be used to specify a particular CD changer or DAT tape machine. This option converts certain Sound Codes or Gender Codes to text using the following format:

   0,[LENGTH],[FIELD][CODE][TEXT],[FIELD][CODE][TEXT], etc...

   The output will be left justified in a field of [LENGTH] spaces. [FIELD] should be "S" for Sound Code or "G" for Gender Code. [CODE] is the actual Sound or Gender Code (A..Z) to translate. The output will contain [TEXT] whenever [Code] appears in the specified [FIELD]. If a song contains more that one of the specified codes, the output will contain the first match found. For example, consider this Sound and Gender translation Field:

   "0, 5, SACD1, SBCD2, GXCART1, GYCART2"

   If the song contains Sound Code A, the output becomes "CD1." If the song contains Sound Code B, the output is "CS2." If the song contains Gender Code X, the output is "Cart1." If the song contains Gender Code Y, the output is "CART2." If the song doesn't contain any of these codes, the output file will contain five blank spaces.

2. **Blank Space or Custom Text File Format**.

99	A single blank space will be output
99,[CUSTOM TEXT]	The Custom Text will be output exactly as entered

3. **Standard Music Fields**. When specifying a field other than 0 or 99, use the following format in the configuration file to specify only a portion of the field:

   [FIELD ID NUMBER],[FIRST CHARACTER],[LENGTH]

   [FIRST CHARACTER] and [LENGTH] are optional. If you include them, separate them with a comma. For example: Use "2" to output the entire Artist Name, "3,1,15" to output only the first 15 characters of the Song Title, or "50,7,4" to output only characters 7-10 of the Air Date (which is the year, since the Air Date uses the MM-DD-YYYY format).

5.1.8.1.2 Exporting POWERGOLD

Exporting POWERGOLD information for use by XStudio is straightforward. If you are using POWERGOLD 2000 or later, follow these steps:

1. From the POWERGOLD 2000 main menu choose **File | Database | Export | To POWERGOLD DOS v7 Song.Dat File**.
2. Click [**OK**] at the message that pops up.
3. In the "**Select Export Directory**" box, browse to the place where you want the Song.Dat file to be created and click [**OK**].

If you are using the DOS version of POWERGOLD, copy the SONG.DAT file located in your POWERGOLD directory to a location that XStudio can read the file from. Then, import the file as the section on importing music describes.

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5.1.8.1.3 Exporting Selector

Selector™ is a registered trademark of Radio Computing Systems, Inc.

Note: These instructions are a reprint of the Computer Concepts Corporation documentation published on their web site, dated 9/14/2000. Sections that apply specifically to Maestro operations have been removed.

Export Setup

The following steps should be taken to successfully export your Selector Database to update your music inventory:

1. From Selector's main menu choose "**Report Generator**".
2. Create a new report (example: **Billboard**)
3. In Song Design Format, Press [**F7**] for the "Punctuation" Screen.
4. Set up '**@**' in byte 1 on line 1, then set up '**.**' in byte 80 on lines 2-6.

Example Selector™ Song Punctuation Display

Punctuation	Line	Column	Length	Font
@	1	1	1	A
.	2	80	1	A
.	3	80	2	A
.	4	80	1	A
.	5	80	1	A
.	6	80	1	A

Note: Font for all parameters must be **A**.

Save your screen. **Select Song Design Format** and set up the following:

Line	Col	Length	Description
1	2	4	Cart Number **
1	8	37	Artist
1	45	48	Title
2	1	7	Length of Song (MM:SS.T)
2	8	4	Intro
2	12	2	Ending
2	14	1	Category
2	15	15	Category Name
2	30	2	Role

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Line	Col	Length	Description
2	32	1	Mood
2	35	5	Sound Code
2	40	7	Hook In
2	47	7	Hook Out
2	55	24	Monday Dayparting
3	1	24	Tuesday Dayparting
3	25	24	Wednesday Dayparting
3	49	24	Thursday Dayparting
4	1	24	Friday Dayparting
4	25	24	Saturday Dayparting
4	49	24	Sunday Dayparting
5	1	76	Song Notes Line #1
6	1	76	Song Notes Line #2

Note: Cart Number comes from the field chosen by the user to store the 4-digit XStudio, DCS, or Maestro cart number in, such as cart number or media number. Users may wish to use Media and retain the CD and Track Numbers in their original Fields.

To Export the Selector.Dat File

1. Go to #8 off the main screen of Selector to report generator and values in the generator.
2. Choose the report you created.
3. Press [**F5**], and **Select All**.
4. Press [**F9**] and #2 to send file to the **Print File Manage**r.
5. Press [**F9**] again and select **Jump to Print File Manager**.
6. With your Report Name highlighted at the top of the screen, press [**F4**]. Now you will see a gray bar toward the bottom of the screen. This is where you will type your path – an example is: **R:\DCS\KCCC\Selector.dat**
7. Press [**F2**] to copy the report.

The file you create stays in the Print File Manager until they are deleted. For maintenance purposes you should delete the older files with each export.

Update the Selector.dat file whenever you add songs into Selector.

5.1.8.2 Setup Auto-Update Music Data

Music data can be imported into the XStudio music data table at any time. However, a more convenient way to handle updated music information is to enable the auto-update feature. When enabled, XStudio will monitor the music source file for changes and when a change is detected, automatically refresh the XStudio music data table, thus reducing the effort required to keep things in

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sync with your music scheduling system.

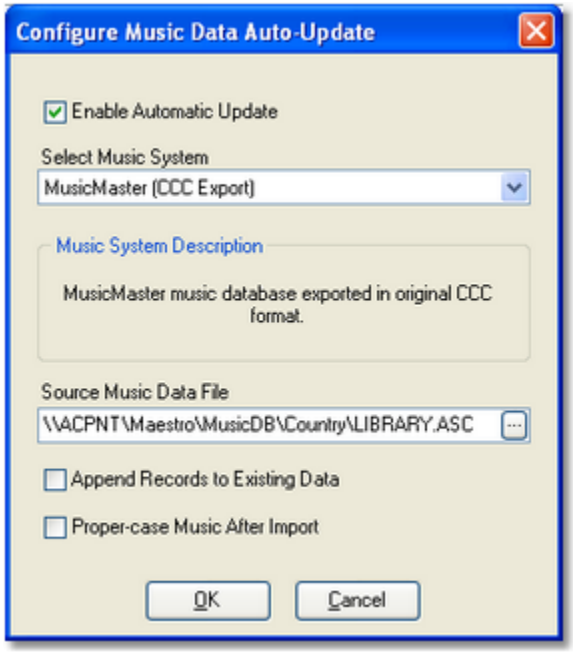
When music is manually imported in XStudio, a prompt appears after the successful import, offering to enable auto-update using the current settings. If you answer "Yes", auto-update will be enabled.

Using the Auto-Update Setup Dialog

Sometimes changes need to be made in the way music data is updated. For instance, if you change music scheduling systems, the music export file name (the import source file name) may change. You might also want to disable auto-update.To modify auto-update settings, click on the [**Utilities**] button to display the utility menu.

Music Utilities Menu

Select the menu item **Setup Music Auto-Update** to display the auto-update configuration dialog.



Music Auto-Update Configuration Dialog

Music Auto-Update Properties

Items with a check mark in the **REQ** column require user entry, while unchecked items have default values which can optionally be changed.

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Property	***REQ***	***Description***
Enable Automatic Update	✓	If checked, automatic updates are enabled. The default is unchecked (automatic updates disabled).
Select Music System	✓	Select the music system producing the music data file from the drop down list.
Source Music Data File	✓	The fully-qualified file name of the source music data file that XStudio will monitor and use for automatic updates.
Append Records to Existing Data		Default = unchecked. If checked, when music data is imported, existing music records in the table are retained. New records are added, changed records are updated. Using this option retains any songs that might be in the music table but do not exist in the music update file.
Proper-case Music after Import		Default = unchecked. If checked, when music data import is complete, all records in the master music table are checked and proper-cased. The first letter of each word in the song title and artist name fields will be capitalized and all other letters of the word in lower case.

When finished editing properties, click on the [**OK**] button to save the new settings. Settings are verified before being saved and you will be prompted if there is a problem with settings; things like a missing file name or no music system has been selected. To discard changes, click on the [**Cancel**] button.

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5.2 Database Reference

The **XStudio Database** is a collection of files called "tables" and is used to store components of automation operations, including tasks, actions, resources used by tasks and scheduled events. There are also tables for song title and artist information (music database) and broadcast log historical information.

A second database, known as the **XStudio Inventory Database**, is also used. This database is a collection of tables used to store current audio inventory information.

5.2.1 Database Files Location

As a default, XStudio database files are located in a folder immediately under the XStudio installation folder. The folder is named "**Data**" and is automatically created when XStudio is launched for the very first time.

A number of files are created in the **Data** folder when XStudio is first launched; these consist of the tables and support files that comprise the database.

Database files, referred to as the XStudio Database, are owned exclusively by XStudio as a default; when XStudio is running, no other application is allowed access to these files. Any attempts to open, copy or delete these files will be denied by the operating system, as they are already opened exclusively by XStudio.

You can make the data available to other applications by setting the Allow Remote Administration option in XStudio preferences. When Remote Administration is enabled, applications like XStudio Administration can be used to remotely update the database.

Files in the **Data** folder should never be deleted or otherwise modified, as loss of XStudio functionality or corrupted data will result, causing XStudio to behave unpredictably.

When XStudio is not running, the database files can be copied, if desired, for archiving, cloning or backup purposes.

5.2.2 Database Tables

The XStudio database is a collection of tables, stored on-disk as one file per table. This section documents tables that are a part of the database, including technical information on fields contained in each table, their type and usage.

All tables are binary data files having a file extension of "**NX1**". Files are created and maintained using NexusDB, created by Nexus Database Systems Pty Ltd. NexusDB is a fast, flexible, reliable database engine embedded in XStudio and supplied royalty-free to the end-user. There's also the option to run NexusDB as a stand-alone server, implementing true multi-user, client/server database operations.

5.2.2.1 Actions Table

The Actions table contains information about all defined Actions. Its on-disk name is: **Actions.nx1**

Actions Table Field Definitions

The fields contained in the Actions table, including field type and size (if applicable).

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Field Name	Type	Size	Description
ActionID	AutoInc		Each time an Action record is created, a unique ID value is automatically assigned by the system. This value is used to identify the Action and is not user-modifiable.
ActionName	String	30	The user-assigned name for the Action.
RelayNo	Integer		<Not used, for future expansion>
ListID	Integer		<Not used, for future expansion>
Data	BLOB		Contains the list of Tasks, in order, used in the Action.
RecCreateDate	Date/Time		The date and time the record was created.
RecEditDate	Date/Time		The date and time the record was last edited.
RecEditBy	String	30	The user who last edited the record.

5.2.2.2 Events Table

The Events table contains information about scheduled events. Its on-disk name is: **Events.nx1**

Events Table Field Definitions

The fields contained in the Events table, including field type and size (if applicable).

Field Name	Type	Size	Description
EventID	AutoInc		Each time an Event record is created, a unique ID value is automatically assigned by the system. This value is used to identify the Event and is not user-modifiable.
EventStation	Integer		If assigned, the work station to which this event is assigned.
EventTime	Time		The scheduled time to perform the Event.
EventDescription	String	30	The user-assigned description (name) of the event.
EventEnabled	Boolean		A True/False flag telling the host system whether or not the Event is enabled and can be run. The default value is ***True***.
EventBegDate	Date		The first date on which the Event is valid to run.
EventEndDate	Date		The last date on which the Event is valid to run.
EventActionID	Integer		The ID number of the Action to perform when the Event is executed.
Data	BLOB		Contains information on valid modes, days and time ranges in which the event can be run. These values are in addition to the start and end dates.
RecCreateDate	Date/Time		The date and time the record was created.
RecEditDate	Date/Time		The date and time the record was last edited.
RecEditBy	String	30	The user who last edited the record.

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5.2.2.3 External Devices Table

The External Devices table contains information about audio switchers used in the system. Its on-disk name is: **ExtDevices.nx1**

External Devices Table Field Definitions

The fields contained in the External Devices table, including field type and size (if applicable).

Field Name	***Type***	***Size***	***Description***
DeviceID	AutoInc		Each time an External Device record is created, a unique ID value is automatically assigned by the system. This value is used to identify the device and is not user-modifiable.
DevicePort	Integer		The COM port number assigned to the device, if applicable. Allowable values are 0..8. Zero means unassigned, the values 1 through 8 are the assigned COM port number.
			Device Port numbers are interpreted by the host application and displayed in a user-friendly way.
DeviceName	String	30	The user-assigned name for the device.
DeviceType	Integer		The device type, stored as a number.
			Device Type values are interpreted by the host application and displayed in a user-friendly way as a name identifying the manufacturer and model of the device.
Data	BLOB		Contains a map of the device resources, including channels, input relays, output relays, Actions assigned to input relays and labels for each of the device resources.
LockOut	Byte Array	32	Contains a list of input relay lock-out values in seconds, if applicable. The default value for each input relay is zero.
HostWrkStn	Integer		The ID of the work station to which the resource is assigned.
RecCreateDate	Date/Time		The date and time the record was created.
RecEditDate	Date/Time		The date and time the record was last edited.
RecEditBy	String	30	The user who last edited the record.

5.2.2.4 Log Data Table

The Log Data table contains information about logs, including snapshots of log status and log splicing operations. Its on-disk name is: **LogData.nx1**

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Log Data Table Field Definitions

The fields contained in the Log Data table, including field type and size (if applicable).

Field Name	Type	Size	Description
ID	AutoInc		Each time a Log Data record is created, a unique ID value is automatically assigned by the system. This value is used to identify the data record and is not user-modifiable.
DataType	Integer		Defines the type of Log Data contained in the record - log snapshot or log splice.
			Data Type numbers are interpreted by the host application and displayed in a user-friendly way.
ActTime	Date/Time		The activity time (a time stamp) of what time the log snapshot or log splice operation occurred.
LogDate	Date		The date of the log that was snapshot or spliced.
Data01	BLOB		If the record is a log snapshot, contains log state information at the time of the snapshot. If the record is a log splice record, contains the original log.
Data02	BLOB		If the record is a log splice record, this field contains the log retrieved from disk for the splice operation (the new log).
RecCreateDate	Date/Time		The date and time the record was created.
RecEditDate	Date/Time		The date and time the record was last edited.
RecEditBy	String	30	The user who last edited the record.

5.2.2.5 Music Data Table

The Music Data table contains song title and artist information, typically imported from a music scheduling system. Its on-disk name is: **Music.nx1**

Music Data Table Field Definitions

The fields contained in the Music Data table, including field type and size (if applicable).

Field Name	Type	Size	Description
ID	AutoInc		Each time a Music Data record is created, a unique ID value is automatically assigned by the system. This value is used to identify the record and is not user-modifiable.
StationID	Integer		The work station to which this record is assigned.
CartNo	String	8	The cart number of the song record.

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Field Name	Type	Size	Description
Title	String	70	The title of the song.
Artist	String	70	The song's artist.
Misc	String	70	A miscellaneous information field.
Data01	BLOB		<Not used, for future expansion>
RecCreateDate	Date/Time		The date and time the record was created.
RecEditDate	Date/Time		The date and time the record was last edited.
RecEditBy	String	30	The user who last edited the record.

5.2.2.6 System Data Table

The System Data table contains records that are used by the application only. It's on-disk name is: **xsSysData.nx1**

System Data Field Definitions

The fields contained in the System Data table, including field type and size (if applicable).

Field Name	Type	Size	Description
ItemName	String	20	The name of the system data record. The value must be unique.
ItemNumber	Integer		A numeric value that may be associated with the item.
ItemText	String	64	A text value that may be associated with the item.
ItemTimeStamp	Date/Time		A date and time value that may be associated with the item.
ItemNote	String	100	A text note containing information about the item.
RecCreateDate	Date/Time		The date and time the record was created.
RecEditDate	Date/Time		The date and time the record was last edited.
RecEditBy	String	30	The user who last edited the record.

5.2.2.7 Tasks Table

The Tasks table contains information about Tasks. Its on-disk name is: **Tasks.nx1**

Tasks Table Field Definitions

The fields contained in the Tasks table, including field type and size (if applicable).

Field Name	Type	Size	Description
TaskID	AutoInc		Each time a Task record is created, a unique ID value is automatically assigned by the system. This value is used to identify the Task and is not user-modifiable.

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Field Name	Type	Size	Description
TaskName	String	30	The user-assigned name of the Task.
TaskType	Integer		The type of task stored in the record, as an integer value.
			Task Type numbers are interpreted by the host application and displayed in a user-friendly way.
Data	BLOB		Contains the Task specifics, including valid modes, days and times along with Task-specific properties.
TaskInfo	BLOB Memo		Contains Task properties, expressed as text. This field is used by the host application when generating Task property reports.
RecCreateDate	Date/Time		The date and time the record was created.
RecEditDate	Date/Time		The date and time the record was last edited.
RecEditBy	String	30	The user who last edited the record.

5.2.2.8 Work Stations Table

The Work Stations table contains information about defined host work stations. Its on-disk name is: **WorkStns.nx1**

Work Stations Table Field Definitions

The fields contained in the Work Stations table, including field type and size (if applicable).

Field Name	Type	Size	Description
WrkStnID	AutoInc		Each time a Work Station record is created, a unique ID value is automatically assigned by the system. This value is used to identify the Work Station and is not user-modifiable.
WrkStnName	String	50	The user-assigned name for the work station.
RecCreateDate	Date/Time		The date and time the record was created.
RecEditDate	Date/Time		The date and time the record was last edited.
RecEditBy	String	30	The user who last edited the record.

5.2.3 Database Sharing

Database files, referred to as the XStudio Database, are owned exclusively by XStudio as a default; when XStudio is running, no other application is allowed access to these files. Any attempts to open, copy or delete these files will be denied by the operating system, as they are already opened exclusively by XStudio.

Making the database available to other applications, called "sharing," can be accomplished in two distinct ways. One method is to enable the XStudio Allow Remote Administration property, which

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causes XStudio to function as a database server. The other method is to use a separate stand-alone database server application, which implements a client/server relationship between XStudio and the database and makes the database available to other utility applications as well.

If you set up XStudio to operate using a remote client/server database model, the local database is not used and any settings applicable to the local database, including allowing remote access, are disabled.

Database Sharing by Allowing Other Applications to Connect to XStudio

The easiest and most convenient method of sharing database information with another application is to enable the Allow Remote Administration property in XStudio. Essentially, XStudio becomes a database server in addition to its other duties.

When XStudio is functioning as a database server, other utility applications designed for use with XStudio can connect to and view or modify the database depending on the utility application. The utility might be run on the same PC or might be connecting from some other PC. Consult the utility application software documentation for details on how to access the database hosted by XStudio.

Database Sharing Using the Client/Server Model

To implement database sharing using the traditional client/server model, you need to install and configure a stand-alone database server application, typically on a PC other than the one running XStudio. Once the database server application is running successfully, you need to modify the XStudio database properties to have XStudio use the remote database server. For additional information on using the client/server model, see the topic on Using a Remote Database.

The necessary stand-alone database server software for implementing a centralized database is not included in the XStudio installation package. If you wish to use a centralized database, contact your vendor for information on obtaining the database server software, along with its requirements for use.

Effects of Database Sharing

Sharing of the XStudio database has minimal effects on the operation of XStudio and users need not change how they do things when working with XStudio. There are some possible side effects of database sharing to be aware of, though.

Performance

Performance of XStudio can be affected when the database is shared, in the following ways:

1. If XStudio is functioning as a database server in addition to its other duties, application response time could be a bit slower if one or more utility applications are connected and performing database-intensive tasks. This occurs because XStudio has to divide its attention between normal operations and serving the database requests of connected client applications.
2. If XStudio is connecting to a remote database server and network (LAN) traffic is extremely high, application response time could be slower as a result of the the high network traffic impeding retrieval of data from the database server.

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Changing Data

In most cases modification of data, whether it occurs within XStudio or is a result of a client utility application making changes, is transparent and automatically handled by XStudio. If a Task is updated, for instance, the next time the Task is used in an Action, the new information is used regardless of whether the change was made within XStudio or made with a utility application connecting remotely.

However, if a remote utility application is re-importing the music library, for instance, and XStudio needs to retrieve song title and artist information, the cart may not be found if the import is in progress at the time of the lookup.

5.2.4 Inventory Manager Database

The **XStudio Inventory Manager (InvMgr) Database** is separate from the XStudio application database. Current audio inventory information is stored in this database and information is automatically updated as the on-disk inventory of available audio files changes.

5.2.4.1 InvMgr Files Location

As a default, XStudio Inventory Database files are located in a folder immediately under the XStudio installation folder. The folder is named "**InvData**" and is automatically created when XStudio is launched for the very first time.

A number of files are created in the **InvData** folder when XStudio is first launched; these consist of the tables and support files that comprise the database.

Inventory database files, referred to as the XStudio Inventory Database, are owned exclusively by XStudio as a default; when XStudio is running, no other application is allowed access to these files. Any attempts to open, copy or delete these files will be denied by the operating system, as they are already opened exclusively by XStudio.

Files in the **InvData** folder should never be deleted or otherwise modified, as loss of XStudio functionality or corrupted data will result, causing XStudio to behave unpredictably.

You can make the inventory data available to other applications by setting the Allow Remote Access option in XStudio preferences.

When XStudio is not running, the database files can be copied, if desired, for archiving, cloning or backup purposes.

5.2.4.2 InvMgr Database Tables

The XStudio inventory manager database is a collection of tables, stored on-disk as one file per table. This section documents tables that are a part of the database, including technical information on fields contained in each table, their type and usage.

All tables are binary data files having a file extension of "**NX1**". Files are created and maintained using NexusDB, created by Nexus Database Systems Pty Ltd. NexusDB is a fast, flexible, reliable database engine embedded in XStudio and supplied royalty-free to the end-user. There's also the option to run NexusDB as a stand-alone server, implementing true multi-user, client/server database operations.

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5.2.4.2.1 Inventory Data Table

The Inventory Data table contains all audio file inventory information. It's on-disk name is: **InvData.nx1**

Inventory Data Field Definitions

The fields contained in the System Data table, including field type and size (if applicable).

Field Name	***Type***	***Size***	***Description***
FilePath	String	300	The path to the inventory item. Path may be expressed either as a drive letter or using UNC naming conventions.
FileName	String	30	The name of the audio file, including the extension.
CartNo	String	10	The cart number (ID) of the inventory item.
FileDate_UTC	Date/Time		The date/time value of the last modification to the audio file.
FileSize	Integer		The size of the audio file, in bytes.
DAF_Header	BLOB		This field contains a binary copy of the audio file header.

Approximate Record Size: 2701 bytes

5.2.4.2.2 System Data Table

The System Data table contains records that are used by the application only. It's on-disk name is: **SysData.nx1**

System Data Field Definitions

The fields contained in the System Data table, including field type and size (if applicable).

Field Name	***Type***	***Size***	***Description***
ItemName	String	20	The name of the system data record. The value must be unique.
ItemNumber	Integer		A numeric value that may be associated with the item.
ItemText	String	64	A text value that may be associated with the item.
ItemTimeStamp	Date/Time		A date and time value that may be associated with the item.
ItemNote	String	100	A text note containing information about the item.
RecCreateDate	Date/Time		The date and time the record was created.
RecEditDate	Date/Time		The date and time the record was last edited.
RecEditBy	String	30	The user who last edited the record.

Approximate Record Size: 306 bytes

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5.2.4.3 Sharing the InvMgr Database

Inventory database files, referred to as the XStudio Inventory Database, are owned exclusively by XStudio as a default; when XStudio is running, no other application is allowed access to these files. Any attempts to open, copy or delete these files will be denied by the operating system, as they are already opened exclusively by XStudio.

Making the database available to other applications, called "sharing," can be accomplished in two distinct ways. One method is to enable the XStudio Allow Remote Access property in the **Inventory Manager Options** section of **Preferences**, which causes XStudio to function as a database server. The other method is to use a separate stand-alone database server application, which implements a client/server relationship between XStudio and the database and makes the database available to other utility applications as well.

Inventory Database Sharing by Allowing Other Applications to Connect to XStudio

The easiest and most convenient method of sharing database information with another application is to enable the Allow Remote Access property in XStudio. Essentially, XStudio becomes a database server in addition to its other duties.

When XStudio is functioning as a database server, other utility applications designed for use with XStudio can connect to and view or modify the database depending on the utility application. The utility might be run on the same PC or might be connecting from some other PC. Consult the utility application software documentation for details on how to access the database hosted by XStudio.

Effects of Inventory Database Sharing

Sharing of the XStudio inventory database has minimal effects on the operation of XStudio and users need not change how they do things when working with XStudio. There are some possible side effects of database sharing to be aware of, though.

Performance

Performance of XStudio can be affected when the database is shared, in the following ways:

1. If XStudio is functioning as a database server in addition to its other duties, application response time could be a bit slower if one or more utility applications are connected and performing database-intensive tasks. This occurs because XStudio has to divide its attention between normal operations and serving the database requests of connected client applications.
2. When XStudio is functioning as a database server, clients connect via TCP and depending what client tasks are being performed, network traffic may increase significantly for short periods of time. This could cause temporary slowdowns in activities that use the network connection.

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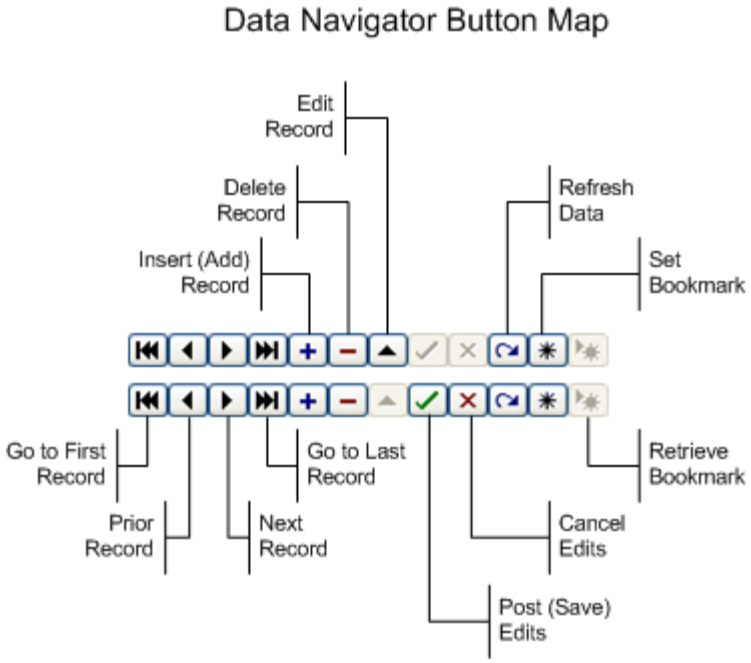
5.3 Data Navigators

Several areas in XStudio make use of so-called "data navigators". Essentially, a data navigator is an organized set of buttons that provides an easy-to-use interface for navigating around in displayed data like the log, station definitions, cart categories, and music databases. In addition to navigation, some of the navigators include buttons to add (insert), edit, & delete items.

Two example navigators are shown here – there are two because the "state" (availability) of buttons will vary depending on the current task. For instance, if you are at the beginning of a list of Task records, the navigator buttons for moving backwards through the list are disabled – at least, until you move away from the beginning of the list.



Depending upon the area of XStudio in which you're working, some of the navigator buttons depicted are not visible because the functionality they provide is not allowed.

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5.4 Keyboard Shortcuts

A number of keyboard shortcuts are implemented in XStudio. Availability of some shortcuts varies depending on the main display control that is active at a given moment.

The following tables document keyboard shortcuts that are available, starting with global shortcuts and continuing with shortcuts available only in certain controls within XStudio.

Global Shortcuts

These shortcut keys are active anywhere on the main display. It does not matter which control on the main display is active.

Shortcut	***Action***
[**F1**]	Displays context-sensitive help, if available, for the active control. This keystroke applies to all displayed windows and dialogs in XStudio.
[**F10**]	Toggles the [**Auto**] (Auto-Segue) button on and off. Has the effect of enabling or disabling automatic sequencing of audio playback from the log.
[**F11**]	Displays the Log Search dialog. See the topic on Searching a Log for details on using the search dialog.
[**F12**]	Search Again. Repeats the last search on the log, starting from the most recent successful match. No dialog is displayed.
[**Ctrl-1**]	Deck 1 Play. The effect is the same as clicking on the Channel 1 (Deck 1) [**Play**] button. XStudio plays the item on the log marked as Next-To-Play. The Next-To-Play item is highlighted on the log, using a reverse color scheme and the text **Next=>** in the Status Info column.
[**Ctrl-2**]	Deck 2 Play. The effect is the same as clicking on the Channel 2 (Deck 2) [**Play**] button. XStudio will either start playing the Next-To-Play item on the log or the next item in the Audio Clipboard, depending on the state of the deck's Playback Source button.
[**Ctrl-3**]	Deck 3 Play. The effect is the same as clicking on the Channel 3 (Deck 3) [**Play**] button. XStudio will either start playing the Next-To-Play item on the log or the next item in the Audio Clipboard, depending on the state of the deck's Playback Source button.
[**Ctrl-4**]	Deck 4 Play. The effect is the same as clicking on the Channel 4 (Deck 4) [**Play**] button. XStudio will either start playing the Next-To-Play item on the log or the next item in the Audio Clipboard, depending on the state of the deck's Playback Source button.
[**Ctrl-H**]	Toggles the Cart Wall visibility on and off.
[**Ctrl-I**]	Toggles the inventory display visibility on and off.
[**Ctrl-M**]	Toggles the Music Search Dialog visibility on and off.
[**Ctrl-O**]	Open a log. Displays the Open Log Dialog. The Open Log dialog is used to manually open (load) a log into XStudio.
[**Ctrl-P**]	Print Log. Displays the Print Log Dialog.
[**Ctrl-V**]	Validate Log. Validates the current log and displays the results. See the

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Shortcut	***Action***
	topic on Log Validation for more information.
[**Ctrl-X**]	Exit XStudio. You are prompted to confirm that you want to close down XStudio and if the host audio engine is XEngine, given the option to close it as well.
[**Tab**] [**Shift-Tab**]	The tab key. Moves from one control to another on the main display. You will be cycled through the log display, filters, inventory and hourly totals. [**Tab**] moves forward, [**Shift-Tab**] moves backward.
Mouse Actions	
[**Right-Click**]	If the control has a context pop-up menu, the pop-up menu is displayed. If there is no pop-up menu for the control, context-sensitive help is displayed.

Log Control Shortcuts

When the broadcast log display control is active on the main display, a number of keyboard shortcuts are available in addition to the global shortcuts.

Shortcut	***Action***
[**F2**]	Jump to Log Time. Displays a dialog to enter a time to move to. The Hour Totals list can also be used to move to a specific hour.
[**F3**]	Edit log item. Displays the appropriate log item edit dialog for the selected log item.
[**Ctrl-F3**]	Copies the selected spot record to the spot clipboard for use in pasting the item into the log. **Note**: Only spot (commercial) records can be copied to the clipboard.
[**F4**]	Jump to the next Directive. Locates the next Directive on the log, starting from the currently selected log item.
[**Shift-F4**]	Jump to the previous Directive. Locates the previous Directive on the log, starting from the currently-selected log item.
[**F5**]	If a time approximate directive is selected on the log, marks the directive as the "active" directive. For all other records, the keystroke is ignored.
[**F7**]	Sets the Next-To-Play item on the log ***without user confirmation***.
[**F8**]	Jump to the next Open Avail. Locates the next open spot availability on the log, starting from the currently-selected log item.
[**Shift-F8**]	Jump to the previous Open Avail. Locates the previous open spot availability on the log, starting from the currently-selected log item.
[**Ins**] [**Insert**]	Insert a new log item (record). Displays the Insert Log Item dialog.
[**Ctrl-Ins**] [**Ctrl-Insert**]	Paste spot record. Pastes a previously copied audio item from the spot clipboard into the log at the selected log record position. If the spot clipboard is empty, nothing happens.

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Shortcut	***Action***
[**Del**] [**Delete**]	Delete a log item. Deletes the selected log item after user confirmation.
[**UpArrow**] [**DnArrow**]	Move up or down one item on the log.
[**LeftArrow**] [**RightArrow**]	Scroll left or right on the current row of the log. Has the same effect as using the log's horizontal scroll bar.
[**PgUp**] [**PgDn**]	Pages through the log, moving one page up or one page down.
[**Ctrl-Home**]	Move to the beginning of the log.
[**Ctrl-End**]	Move to the end of the log.
Mouse Actions	
[**Double-Click**]	Sets the Next-To-Play item on the log after user confirmation. Double-clicking on a log item has the same effect as the [**F7**] keystroke except you are asked to confirm your action.
[**Right-Click**]	Displays the log pop-up context menu, which provides a number of options including adding, editing and deleting log items.

Log Item Edit Dialogs

These shortcuts are available in all of the log item edit displays.

Shortcut	***Action***
[**F1**]	Context-sensitive help for the selected field.
[**Enter**]	Move to the next field or button in the dialog.
[**Tab**], [**Shift-Tab**]	Move from one control to another in the dialog. [**Tab**] moves forward, [**Shift-Tab**] moves backward.
Mouse Actions	
[**Right-Click**]	Displays a field edit menu, typically **Cut**, **Copy** and **Paste**. Not all fields in the edit dialogs support cut, copy or paste, depending on the field type.

Inventory Control Shortcuts

When the inventory list control is active on the main display, a few keyboard shortcuts are available in addition to the global shortcuts.

Shortcut	***Action***
[**Ctrl-A**]	Adds the selected inventory item to the Audio Clipboard.
[**Del**] [**Delete**]	Delete a log item. Deletes the selected log item after user confirmation.
[**UpArrow**] [**DnArrow**]	Move up or down one item in the inventory list.
[**LeftArrow**]	Scroll left or right on the current row of the inventory list, if applicable. Has

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Shortcut	***Action***
[**RightArrow**]	the same effect as using the list's horizontal scroll bar, if visible.
[**PgUp**] [**PgDn**]	Pages through the inventory list, moving one page up or one page down.
[**Home**]	Move to the beginning of the inventory list.
[**End**]	Move to the end of the inventory list.
Mouse Actions	
[**Right-Click**]	Displays the inventory list pop-up context menu, which provides a number of options including immediate play of the selected inventory item, adding the selected item to the Audio Clipboard, forcing a manual refresh of the inventory, and printing the inventory list.

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5.5 Log Directives

Log Directives are a special key component of the broadcast log (schedule). Log Directives serve a number of purposes:

- They provide specific instructions to XStudio regarding program execution. Examples include marking the commercial break that will play next in Satellite mode, causing an XStudio Action to execute at a specific log time, and causing XStudio to play audio at a specific time.
- They serve as visual markers, separating logical groups of program content in addition to normal log items like program titles and log notes.
- They are used in calculating content length for audio elements associated with the Log Directive.
- They are used in calculating the hourly audio content totals.

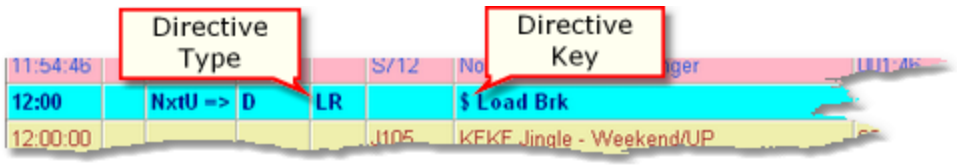
There are several types of Log Directives, each with a specific purpose that relates to program execution. This topic outlines the types of Directives that can be used with XStudio.

XStudio processes Log Directives in different ways, depending on the mode of operation at the moment the directive is executed. In some cases, the directives are ignored. Review the description of each directive for details on how modes affect processing of the directive.

Some Log Directive types can also contain directive "keys" or "modifiers". These are special characters added to the directive description field, typically in the first character position, that affect the directive's meaning and behavior. For clarity, these items are referred to as a ***directive key***.

Directive Types and Directive Keys

Log Directive types are not visible on the XStudio log display as a default. Directive keys, which are a part of the directive description, are visible as a default. See the topic on Customizing Log Column Visibility for details on how to make directive types visible on the log.



Log Directive Types and Keys

For information on creating and editing Log Directives within XStudio, see the topics on Editing a Log, Load Directive, Load Window, Execute Function and Play Cart Directive.

The table below includes base information on available Log Directive types and keys along with links to additional details on each. The characters contained in the ***Log*** column of the table indicate what is displayed on the XStudio log during operation. In the case of directive types, the information is displayed in the ***Dir Type*** column. Directive keys appear in the ***Description*** column.

Name	***Log***	***Purpose***
Directive Types		
Load Required	LR	Load Required directives designate breaks that must be covered

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Name	Log	Purpose
		in Satellite mode operations. Satellite-delivered formats will often have at least a few times during the day or hour that must include locally inserted programming, typically commercial breaks.
Load Optional	LS	Load Optional directives designate breaks that are optional in nature in Satellite mode operations. Satellite-delivered formats generally have a number times during an hour that can optionally be preempted by locally-inserted programming, typically commercial breaks. If the station chooses not to use the allotted break, the programming service "covers" the break with content.
Load Play	LP	Load Play directives are used to start playing audio at a specific log time. They are valid only during Satellite mode operations. If XStudio is in another mode of operation at the time of the directive execution, immediate playback is ignored and the directive is handled like a Load Optional directive.
		If you have previously used a DCS or Maestro system, note that ***you should not use a Load Play directive with the time-approximate or cast-off Directive Key in Satellite mode***, as might have been done with these other systems. Instead, use standard directives in XStudio's Automation mode.
Load Window	LW	The Load Window directive is used to update the XStudio Current Voice value. Assign the Relay Number value as **99**.
Execute Function	CR	Execute Function directives are used to initiate an XStudio Action at the specified log time.
Play Cart	PC	Play Cart Directives are used to cause XStudio to play a specific audio item (cart) at the directive time. It is valid only in Satellite mode; in all other modes, the directive is treated as though it is a normal cart and played in sequence with other carts in a non-time-specific way.
Directive Keys - ***Except for Current Voice, keys must be placed as the first character of the Description!***		
Time Offset	:	The colon character. Log Directives are whole-minute based. Use the colon character to "offset" the directive execution time by a certain number of seconds ranging from 1 to 59. Valid in all modes.
Time-Approximate	~	The tilde character. ***Used in Satellite mode only*** to disable time-specific execution of the directive, making it sequence-oriented. This approach is used for special events programming like sports broadcasts, where breaks are not predictable time-wise. In modes other than Satellite mode, all load directive types (Load Required, Load Optional, Load Play) are treated as time-approximate (sequence-oriented) in XStudio and do not need a Time Approximate directive key.
Cast-Off	$	The dollar sign character. Causes XStudio to "cast-off" or skip over unplayed audio items on the log, setting the Next-To-Play

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Name	Log	Purpose
		item as the first audio item (cart) following the directive. Also referred to as "Soft Sync". Valid in Satellite and Automation modes only, ignored in all other modes.
Current Voice	$	The dollar sign character, located at any position in the Description ***except*** the first character position. When used with the Load Window directive, the two characters following the dollar sign become the current voice value. Valid in all modes.
Hard Sync	!	The exclamation point character. Causes XStudio to stop all playing audio on the primary output channel (the one processing the log) and immediately begin playing the first audio element (cart) on the log following the directive. Valid in Automation mode only, ignored in all other modes.
Suspend Auto-Segue	^	The caret character. Causes XStudio to turn off the [**Auto**] button, disabling auto-segue of the log. Valid in Automation mode only, ignored in all other modes.
Resume Auto-Segue	@	The "at sign" character. Causes XStudio to turn on the [**Auto**] button, enabling auto-segue of the log. Valid in Automation mode only, ignored in all other modes.

Load Required Directive (LR)

The Load Required directive is used primarily in Satellite mode to indicate a commercial break that must be covered locally. The directive needs to be activated prior to the earliest expected signal from the program supplier to execute the break. As an example, if the program supplier's format calls for the break at 20 minutes past the hour and the break might float 5 minutes either way, the directive time should be no later than 14 minutes past the hour. It should be positioned no earlier than a minute past the preceding break's latest possible execution time. When XStudio gets the signal to play the break, it is evaluated to see if there is any content in the break. If so, XStudio does two things:

1. Starts playing the first audio item on the log following the directive. Playback of the item occurs regardless of where the XStudio Next-To-Play marker is on the log. In Satellite mode, the active directive, noted with text **ActD=>**, always controls what's next to be played when playback is initiated via an XStudio Action.
2. Advises the running Action of the total length of the break. The Action then waits the length of the break before performing the next Task in the Action list.

If there are no audio items (carts) on the log, XStudio passes a message to the running Action that there is nothing to play and the next Task in the Action list is executed immediately. The effect is that if in the Action you had updated an audio switcher to turn off the program service channel just prior to the play command and the task following the play command is to restore the program service channel to air, the two switcher updates (before and after the break) occur within milliseconds of one another, keeping the program service on the air.

In other modes of operation, the Load Required directive comes into play only if the directive contains a directive key and the key is valid for the current operating mode.

XStudio treats Load Required and Load Optional directives in exactly the same way.

If there are no audio items associated with the directive (meaning no carts

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between the directive and the next directive), XStudio will skip the break entirely in Satellite mode regardless of the directive type.

If there is at least one audio item associated with the directive, XStudio will play the break in Satellite mode. ***You must ensure that you have enough audio elements to "fill" the break*** - if the scheduled break length is 3 minutes, you must have 3 minutes of content scheduled on the log. There is no automatic backfill of audio to meet the required length.

Load Optional Directive (LS)

The Load Optional directive is used primarily in Satellite mode to indicate a commercial break that can optionally be used by the local station or, if there are no commercials, skipped and the program service kept on the air.

The behavior of XStudio in terms of handling this directive is the same as the Load Required directive handling.

Load Play Directive (LP)

The Load Play directive has special meaning in Satellite mode only. If XStudio is in Satellite mode when the directive is activated, the first audio item (cart) on the log following the directive begins playing immediately, followed by any other audio items on the log up to the next log directive.

If you have previously used a DCS or Maestro system, note that ***you should not use a Load Play directive with the time-approximate or cast-off Directive Key in Satellite mode***, as might have been done with these other systems. Instead, use standard directives in XStudio's Automation mode.

In all other modes of operation, the Load Play directive is handled in the same way as the Load Optional directive.

Load Window Directive (LW)

The Load Window directive is used to set the Current Voice value in XStudio. This value is used in cart numbers using the cart macro "##".

To update the Current Voice value using this directive, you must enter text in the directive Description field somewhere ***after*** the first character. The "$" character is used to designate the location of the new voice value. For instance, to change the Current Voice value to "BJ", enter the following:

```
Bill Jones $BJ
```

Notice that the new voice value is designated with a "$" character followed by the two-character value, which can be either numbers or letters.

You should not use other documented macro characters when setting the Current Voice value, as they will produce unpredictable and likely unwanted results. XStudio translates the two characters following the "$" symbol literally when updating the Current Voice property via the Load Window directive.

The Load Window directive is active in all modes of operation.

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Execute Function Directive (CR)

The Execute Function directive is used to execute an XStudio Action at a specific log time. This directive is valid for Satellite and Automation modes only; it is ignored in all other modes.

Play Cart Directive (PC)

The Play Cart directive is used to play a specific audio item (cart) at the directive log time. It is valid only in Satellite mode; in all other modes, the directive is treated as though it is a normal cart record on the log and played in sequence with other carts in a non-time-specific way.

Time Offset Directive Key (:xx)

The Time Offset directive key is used to make a directive's execution (activation) time something other than an exact hour and minute. If you have a directive scheduled at 2:42 PM on the log and want it to be activated at 2:42:30 PM, enter the colon character in the first character of the directive Description field, followed by the ***two-digit*** value for the number of seconds to "offset" from the minute, i.e., enter **:30** followed by whatever description you wish. The time offset value must be two digits following the colon or your results will be unpredictable.

Time Approximate Directive Key (~)

The Time Approximate directive key is intended for use in Satellite mode only, as a way of making load directive types (Load Required and Load Optional) sequence-oriented rather than time-driven. For more information on how to use time approximate directives in Satellite mode, see the topic Satellite Programming - Special Events.

Cast-Off Directive Key ($)

The Cast-Off directive key is used in XStudio to perform what is known as a "soft sync". When the directive is activated, it causes XStudio to "cast-off" or skip over unplayed audio items on the log, setting the Next-To-Play item as the first audio item (cart) following the directive. When the currently playing cart reaches EOM (Aux Mark), the audio item immediately following the directive is played. The effect is to synchronize log playback close to the directive time, a technique that keeps XStudio close to real time in terms of program execution.

When a directive containing the Cast-Off key is executed and the XStudio Next-To-Play item on the log is already beyond the log time of the directive, the Cast-Off key is ignored.

To create a Cast-Off key, enter a "**$**" (dollar sign) as the very first character of the directive's Description field.

The Cast-Off directive key is valid in Satellite and Automation modes only and is ignored in all other modes.

Current Voice Directive Key ($)

The Current Voice directive key is used in combination with the Load Window directive to set the current announcer voice value. See the Load Window directive description for details on using this key. The Current Voice directive key is valid in all modes of operation.

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Hard Sync Directive Key (!)

The Hard Sync directive key is used to perform an immediate synchronization of XStudio audio playback to a specific log time. When a directive containing the Hard Sync key is activated, XStudio stops any audio playing on the primary playback channel (channel 1) immediately and begins playing the item on the log immediately following the directive. The effect is an abrupt stop of playing audio and an immediate start of the next audio item, achieving an immediate synchronization of audio playback with the log.

When a directive containing the Hard Sync key is executed and the XStudio Next-To-Play item on the log is already beyond the log time of the directive, the Hard Sync key is ignored.

To create a Hard Sync key, enter an "**!**" as the very first character of the directive's Description field.

The Hard Sync directive key is valid in Automation mode only and is ignored in all other modes.

Suspend Auto-Segue Directive Key (^)

The Suspend Auto-Segue directive key is used to disable auto-segue playback from the log. When a directive containing this key is activated, XStudio turns off (disables) the [**Auto**] button on the channel 1 transport. No other action is taken. The effect is that if XStudio is currently playing a cart, it will not automatically sequence to the Next-To-Play item on the log and play it when the cart reaches EOM (Aux Mark). The playing cart will finish and XStudio will be idle until either a user or an Action restarts audio playback.

To create a Suspend Auto-Segue key, enter a "**^**" (caret) as the very first character of the directive's Description field.

The Suspend Auto-Segue key is valid in Automation mode only and is ignored in all other modes.

Resume Auto-Segue Directive Key (@)

The Resume Auto-Segue directive key is used to re-enable auto-segue playback from the log. When a directive containing this key is activated, XStudio turns on (enables) the [**Auto**] button on the channel 1 transport. No other action is taken. The effect is that audio playback from the log will be auto-sequenced when a cart playing from the log reaches EOM (Aux Mark).

Resume Auto-Segue does not cause audio to start playing. If XStudio is not playing audio when the Resume Auto-Segue key is executed, no playback will occur until started by a user or by an Action. If audio is playing when the Resume Auto-Segue key is executed and the audio source is the log, the Next-To-Play item on the log will be played at EOM (Aux Mark) of the playing item.

To create a Resume Auto-Segue key, enter the "**@**" (at sign) character as the very first character in the directive's description field.

The Resume Auto-Segue key is valid in Automation mode only and is ignored in all other modes.

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5.6 Operating Modes

XStudio features four (4) distinct modes of operation:

- **Emergency**
- **Live**
- **Automation**
- **Satellite**

The "mode" that XStudio is operating under at a given moment affects its behavior relating to things like whether or not it will play through log directives, what will happen when the end of a log is reached and there is no subsequent log available, whether or not certain log directives will be executed, whether or not a Task will be executed and whether or not a Scheduled Event will execute, among other things.

The current XStudio Mode can be changed on-the-fly at any time. The end-user can manually change modes and the operating mode can be changed using a Set Mode automation Task which is executed as a part of an Action. You can also set the default mode of operation in Preferences, which is the mode XStudio will operate in when the program is started.

This topic provides an overview of each of the available modes of operation and highlights session properties and features that are either enabled or disabled for a mode.

Emergency Mode

The emergency mode of operation is intended for situations where XStudio is being used as an emergency fall back system. Often, an emergency log, containing generic undated program content, has been created and will be the only log used for this scenario. An emergency log might contain only a few hours of content, unlike standard daily logs, which will generally contain a full 24 hours worth of content.

When operating in Emergency Mode, XStudio works only with the currently loaded log, if any, and does not attempt to load the next day's log when the end of the current log is reached.

Affected Session Properties

When XStudio transitions to Emergency mode, log handling and audio playback options are affected as shown:

Option/Functionality	***Change Description***
Auto-Segue	***The Auto-Segue state (enabled/disabled) is not changed***. If you wish to ensure Auto-Segue of audio is enabled and setting Emergency mode is a part of an Action, you may wish to include a Set Auto-Segue Task in the Action.
Play Through Directives	***Enabled***. Regardless of the previous state of the Play Through Directives property, it is enabled.
Wrap Log Option	***The Wrap Log Option state is not changed***. However, the menu item to change the option is made available for user changes.
Log Directives	***The Load Window directive is processed; all others are ignored, including any directive keys***. XStudio does continue to track active and next directives.
Actions/Tasks	Actions can be initiated with input relays, hot buttons or scheduled events only, as Log Directives are ignored. When an

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Option/Functionality	Change Description
	Action is processed, only Tasks that are valid for Emergency mode are processed. Tasks not valid in Emergency mode are skipped.

In addition, log selection tabs (Today/Tomorrow) are hidden as this mode of operation only uses the current log. Additional menu items for manually opening a log are made available.

Live Mode

Live mode places more responsibility on the user than other modes of operation. Essentially, XStudio won't automatically do much on your behalf, but rather depends on the operator to manually run the system.

Affected Session Properties

When XStudio transitions to Live mode, log handling and audio playback options are affected as shown:

Option/Functionality	Change Description
Auto-Segue	***The Auto-Segue state (enabled/disabled) is not changed***.
Play Through Directives	***Enabled***. Regardless of the previous state of the Play Through Directives property, it is enabled.
Wrap Log Option	***The Wrap Log Option state is not changed***. However, the menu item to change the option is made available for user changes.
Log Directives	***The Load Window directive is processed; all others are ignored, including any directive keys***. XStudio does continue to track active and next directives.
Actions/Tasks	Actions can be initiated with input relays, hot buttons or scheduled events only, as Log Directives are ignored. When an Action is processed, only Tasks that are valid for Live mode are processed. Tasks not valid in Live mode are skipped.

In addition, log selection tabs (Today/Tomorrow) are restored to their last state, either hidden or shown. Additional menu items for controlling the visibility of the log selection tabs, enabling or disabling the Log Wrap Option and manually opening a log are made available.

Automation Mode

Automation mode is typically used when a station is delivering most of its on-air content from prerecorded carts using XStudio to play the carts. Usually, this means you are merging music log information from your music scheduling system and commercial content from your traffic system. In Automation mode, XStudio follows the merged log, playing all carts in sequence. Exceptions are missing and, if enabled, out-of-date audio.

Affected Session Properties

When XStudio transitions to Automation mode, log handling and audio playback options are affected as shown:

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Option/Functionality	***Change Description***
Auto-Segue	***The Auto-Segue state (enabled/disabled) is not changed***.
Play Through Directives	***Enabled***. Regardless of the previous state of the Play Through Directives property, it is enabled.
Wrap Log Option	***The Wrap Log Option state is not changed***. However, in Automation mode XStudio will automatically wrap around to the beginning of the current log if the next-day log is unavailable when needed. The idea is that if XStudio is operating in Automation mode, it is unlikely that anyone would be around to correct the problem and it would be better to continue playback of audio than to finish the last item on the log and be idle.
Log Directives	Execute Function and Load Window directives are processed. Load Required, Load Optional and Load Play directives are processed for directive keys only.
Actions/Tasks	All methods of initiating an Action are valid, including input relays, hot buttons, Log Directives and scheduled events. When an Action is processed, only Tasks that are valid for Automation mode are processed. Tasks not valid in Automation mode are skipped.

In addition, log selection tabs (Today/Tomorrow) are restored to their last state, either hidden or shown. Additional menu items for controlling the visibility of the log selection tabs and enabling or disabling the Log Wrap Option are made available.

Satellite Mode

Satellite mode is used when a majority of the on-air content is received via satellite or similar delivery method and the station's main responsibility is to play commercial breaks and coordinate when the satellite-delivered programming is "on-air". For instance, the program supplier feeds music that is placed on the air for a period of time, then sends a signal that it's time to insert a commercial break of some length. At this point, it becomes the job of XStudio to ensure that the satellite feed is taken off the air by controlling channels on an audio switcher and to start playing the appropriate commercials from the log. At the end of the local commercial break, XStudio restores the satellite feed to the air, again by controlling channels on an audio switcher.

Affected Session Properties

When XStudio transitions to Satellite mode, log handling and audio playback options are affected as shown:

Option/Functionality	***Change Description***
Auto-Segue	***The Auto-Segue state (enabled/disabled) is not changed***. If you wish to ensure Auto-Segue of audio is enabled and setting Satellite mode is a part of an Action, you may wish to include a Set Auto-Segue Task in the Action.
Play Through Directives	***Disabled***. Regardless of the previous state of the Play Through Directives property, it is disabled.
Wrap Log Option	***The Wrap Log Option state is not changed***. However, in Satellite mode XStudio will automatically wrap around to the

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Option/Functionality	***Change Description***
	beginning of the current log if the next-day log is unavailable when needed. The idea is that if XStudio is operating in Satellite mode, it is unlikely that anyone would be around to correct the problem and it would be better to continue to cover local breaks, etc, than to allow periods of dead air.
Log Directives	***All Log Directives are processed***. This includes any directive keys, as appropriate.
Actions/Tasks	All methods of initiating an Action are valid, including input relays, hot buttons, Log Directives and scheduled events. When an Action is processed, only Tasks that are valid for Satellite mode are processed. Tasks not valid in Satellite mode are skipped.

In addition, log selection tabs (Today/Tomorrow) are restored to their last state, either hidden or shown.

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5.7 Programming XStudio

Developing your station's air sound is a creative process, requiring a strong sense of what your potential listeners will be attracted to, along with some sound judgment. Once you determine what the "sound" or "format" of the station will be, it's a matter of explaining it to those who will execute the steps needed to achieve that "sound."

Unless you are starting a new radio station, you probably already have a program format which outlines the general sequence and positioning of various audio elements, are creating daily broadcast logs (program schedules) which provide the specifics of execution for a given day, and either staff people or an automation system of some sort is interpreting this information to produce your on-air product.

For purposes of this discussion, we refer to "Programming" as explaining to XStudio how you want things done to produce the desired on-air product. In most cases, you already know what you want XStudio to do - it's a matter of telling XStudio what you want done and when.

In order for XStudio to execute your format properly, you need to complete a few steps:

- **Update Station Format Clocks**. If you already have formats in your music and traffic scheduling systems, they need to be reviewed and perhaps updated with specific instructions for XStudio. Such changes may include placing Log Directives in the formats.
- **Assign Audio Switcher Inputs and Outputs**. If XStudio will be controlling an audio switcher and you will be switching among audio sources, you will need to create an external resource record and assign it to XStudio.
- **Create XStudio Tasks and Actions**. If XStudio will be performing automated tasks such as controlling an audio switcher, starting playback of a break or playing specific jingles, the appropriate Tasks need to be created and assigned to Actions. Subsequently, the Actions will be connected to a specific input relay on an audio switcher, become a scheduled event, connected to a hot button or placed on the log for execution.
- **Produce a daily log**. The log needs to have the appropriate content and special XStudio commands known as Log Directives. Producing a daily log may be as simple as exporting the log from your traffic system or may involve using LogMerge to combine (merge) logs exported from your music scheduling and traffic systems to produce the finished on-air schedule. Most popular music scheduling and traffic systems have export routines to convert their logs to our generic log format.

dcsTools makes available a number of optional programs and utilities that can be used to accomplish these and other tasks. See the topic on Companion Programs & Utilities for a additional information.

How does it all tie together?

First and foremost, the broadcast log (program schedule) dictates what audio will be played during a given day. It is important that the log have all audio content, correctly identified by cart number, scheduled to play, as well as a general sense of when it is to play.

If you are operating your station as a live operation, with a live announcer running all air shifts, there's not much more to do than get the log organized properly and available for XStudio to load from disk as needed. The on-air personality then simply uses XStudio as an on-demand playback device. In fact, the log becomes more a guide, as the personality can choose to play or not play scheduled items, move the items around on the schedule, and play other audio not on the log in an ad hoc, on-demand way.

The reality of today's radio, though, is that it's likely one or more air shifts during the day or overnight will be some form of "walk-away" programming, where there's nobody in the control room and XStudio needs to assume the complete responsibility of controlling your air sound. This is when XStudio operating modes, log directives, audio switching control and Actions come into play.

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These "walk-away" or "automated" times are generally organized in one of two ways:

1. All program content that is to be aired is present on the log and is played by XStudio. This is commonly referred to as "***local automation***". In this scenario, XStudio will play log content from a starting point on the log in a sequential manner. Periodic adjustments for over-scheduled content may be made, using so-called "hard sync" and "soft sync" methods, which are driven by the log.
2. Program content - music or talk show content - is delivered to the station via satellite and at certain times throughout an hour the station is signaled to insert local audio content; typically commercials, local weather and local news, for a specific amount of time. This means that the satellite program feed needs to be taken off the air, the correct local content played and then, the satellite program feed needs to be restored to the air. In addition, the local station may be called upon to play jingles or liners on-demand based on a signal from the program service. This is often referred to as "***satellite automation***." This approach requires XStudio to respond in a non-sequential, asynchronous way to outside stimuli, typically as a result of an input relay.

As you might guess, these two scenarios need to be handled quite differently by XStudio, which is one of the reasons multiple operating modes are available to customize the behavior of XStudio for a particular type of automated performance.

Perhaps the best way to understand how all the pieces tie together is to look at specific examples.

5.7.1 Satellite Automation Programming Example

This example shows how to "program" XStudio for satellite-delivered programming. It is a simple example that assumes the station will use a single satellite-delivered programming service all hours of the day, seven days a week and that the XStudio default operating mode is Satellite. You may wish to review the Program Start Options for XStudio, paying particular attention to the property settings for **Mode at Startup** and **Load Today's Log at Startup**.

We'll also describe how you can suspend automated programming to run a live air shift.

To program satellite automation for XStudio, there are three jobs to do:

- Tell XStudio how and when to play ad hoc audio items when signaled by the programming service. These items include audio generally described by most programming services as liners, jingles and station ID's. They can occur at almost any time during a given hour.
- Tell XStudio how to handle local commercial breaks. The breaks will be signaled by the programming service and unlike the ad hoc items, will generally occur within a relatively small window of time 3 - 4 times per hour.
- Create a broadcast log for XStudio that contains the needed instructions (Log Directives) regarding local breaks, length of the break and the audio items to be played for each break. If a station is using satellite programming exclusively, the broadcast log is typically created with a traffic system and exported directly for use with XStudio as the only content the station needs to put on the log is the local insert material - commercials, promo announcements, PSA's and the like. The majority of the program content, whether it is music or talk programming, is supplied by the service provider in real time.

The Program Service Clock

Each satellite programming service will generally provide one or more format clocks that visually outline in a general way what program elements occur and when, including information about specific signals sent (closures) by the service for commercial breaks, playback of liners, etc. The example clock shown is taken from a well-known service, paired down to just the essentials and marked up for this example.

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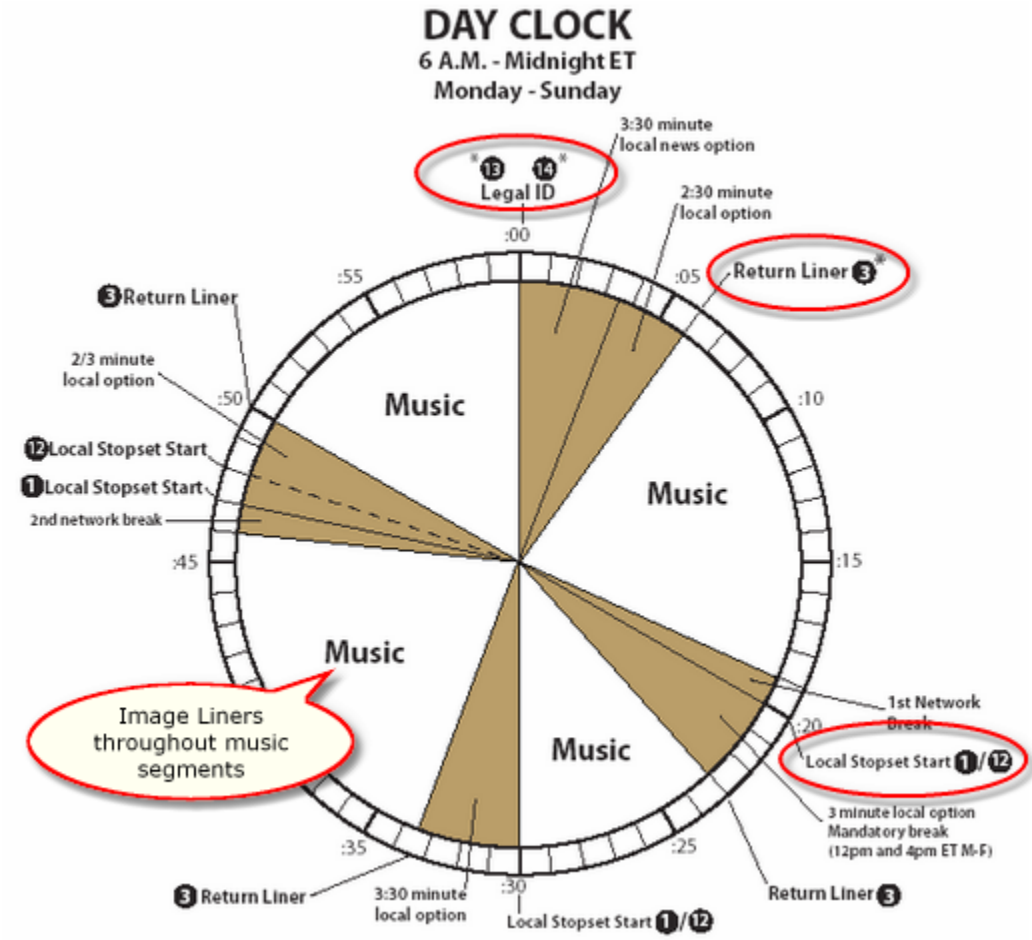

Example Satellite Programming Format Clock

By examining the clock, you can see that there are four (4) sets of functionality that we have to handle. Three (3) of them require the local station to play a single audio item (cart) in response to a signal - the Legal ID, Return Liner and Image Liner. The fourth is a commercial break which occurs four (4) times an hour and requires local playback of audio for varying amounts of time.

Assign an Audio Switcher

In order for XStudio to execute this format successfully, an audio switcher must be used so XStudio can receive the programming service signals and control the audio that appears on the air. If you have not created an audio switcher record in the automation setup area and assigned the switcher to XStudio, review the topics on adding a switcher resource and assigning a switcher to XStudio.

You must have an audio switcher defined before continuing on with this example, as it will be needed when we are creating Tasks to control which audio appears on the air.

> For this example, we will assume that you have an audio switcher installed and configured and that the satellite programming service audio is connected to the switcher on input channel 1. We'll also assume that the primary XStudio playback channel is connected to the switcher on input channel 7.

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The Legal ID

In our example format, the Legal ID is called once per hour, near the top of the hour. The programming service sends a unique closure, so we know that whenever this closure comes, we need to play the Legal ID. Here are the steps needed:

1. Create an Update Switcher task that will be used to make sure the switcher audio input channel to which XStudio playback audio is connected gets on the air. In the update switcher dialog, select the correct audio switcher and make sure row 1, channel 7 is set to the "On" position. Change the Valid Modes option to be Satellite mode only (uncheck all others). Name the task anything you wish that's meaningful to you (we'll use *"Ch 7 On"*) and save the new task.
2. Create a Start Play task that will play a specific cart number. For our example, we'll use cart number "ID01". In the Start Play task dialog, uncheck the "**Play from Log**" property and use the [**Add Cart**] button to add the cart number "ID01". Change the Valid Modes option to be Satellite mode only (uncheck all others). Name the task *"Legal ID"* and save the new task.
3. Create a new Action. Name the action *"CRM Legal ID"*. Select the task *"Ch 7 On"* in the available tasks table and drag it into the Action Task List. Then select the task *"Legal ID"* and drag it into the Action Task List. There should be two items in the list and they should be in the order *"Ch 7 On"*, *"Legal ID"*. XStudio executes tasks in an Action in the list order and we want to be sure that the XStudio audio playback channel on the switcher is on the air before beginning playback of the cart ID01.
4. Assign the new *"CRM Legal ID"* Action to the corresponding Relay Input on the audio switcher. This in effect "connects" the Action to the satellite service's closure.

The effect of these steps is that every time the satellite programming service sends their legal ID closure, ***so long as XStudio is in Satellite mode***, here's what happens:

- XStudio locates the Action assigned for the legal ID closure, in this case the Action named *"CRM Legal ID"*.
- The first task in the Action, *"Ch 7 On"*, causes XStudio to make sure that the switcher's input channel 7 is turned on. No other open or closed input channels are affected.
- The next (and last) task in the Action, *"Legal ID"*, causes XStudio to play back the cart numbered "ID01".

None of these steps taken by XStudio involve the log, affect anything else that might be on the air at the time or any other audio XStudio is playing.

The Return Liner

The Return Liner in our example is very similar to the Legal ID. Differences are that the Return Liner may occur several times an hour, and the particular audio item (cart) we want to play is different. In fact, we're going to reuse one of the Tasks we created from the Legal ID. The steps required:

1. Create a new Start Play task just like step two in the Legal ID. Use a different cart number, "RL01". Name the Task *"Return Liner"* and save the task.
2. Create a new Action. Name the action *"CRM Return Liner"*. Select the task *"Ch 7 On"* in the available tasks table and drag it into the Action Task List. Then select the task *"Return Liner"* and drag it into the Action Task List. There should be two items in the list and they should be in the order *"Ch 7 On"*, *"Return Liner"*. XStudio executes tasks in an Action in the list order and we want to be sure that the audio channel on the switcher is on before beginning playback of the cart RL01. Notice we've simply reused the Update Switcher task we created for the Legal ID, since we needed to achieve the same thing.

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3. Assign the new *"CRM Return Liner"* Action to the corresponding Relay Input on the audio switcher. This in effect "connects" the Action to the satellite service's closure.

Like the Legal ID, the effect of these steps is that every time the satellite programming service sends their Return Liner closure, ***so long as XStudio is in Satellite mode***, XStudio makes sure the correct audio input channel is "On" and plays the cart RL01.

Again, none of these steps taken by XStudio involve the log, affect anything else that might be on the air at the time or any other audio XStudio is playing.

The Image Liner

By now, you probably know what you need to do since the Image Liner is similar to the Legal ID and Return Liner, save with the exception of the cart number. Here are the steps:

1. Create a new Start Play task just like step two in the Legal ID. Use a different cart number, "IL01". Name the Task *"Image Liner"* and save the task.
2. Create a new Action. Name the action *"CRM Image Liner"*. Select the task *"Ch 7 On"* in the available tasks table and drag it into the Action Task List. Then select the task *"Image Liner"* and drag it into the Action Task List. There should be two items in the list and they should be in the order *"Ch 7 On"*, *"Image Liner"*. XStudio executes tasks in an Action in the list order and we want to be sure that the audio channel on the switcher is on before beginning playback of the cart IL01. Notice we've simply reused the Update Switcher task we created for the Legal ID, since we needed to achieve the same thing.
3. Assign the new *"CRM Image Liner"* Action to the corresponding Relay Input on the audio switcher. This in effect "connects" the Action to the satellite service's closure.

Like the Legal ID and Return Liner, the effect of these steps is that every time the satellite programming service sends their Image Liner closure, ***so long as XStudio is in Satellite mode***, XStudio makes sure the correct audio input channel is "On" and plays the cart IL01.

As with the Legal ID and Return Liner, none of these steps taken by XStudio involve the log, affect anything else that might be on the air at the time or any other audio XStudio is playing.

The Commercial Break

Handling the example format's commercial break is quite different from the other functionality we've programmed for XStudio so far. For one thing, it involves the log. Handling a break also requires we take the program service audio off the air while playing the break, then restore it to air following completion of the local break. For the commercial break to work correctly, we need to create an Action that handles the audio switching and starts audio playback of the break, plus we need to ensure the correct commercial break is played from the log.

Create the Commercial Break Action

Follow these steps to create the Action for the local commercial break:

1. Create a new Update Switcher Task. Name the task *"CRM Local Breakaway"*. In the Updated Switcher dialog, select the correct audio switcher. Turn row 1, channel 7 "On". Turn all other channels on row 1 "Off". Change the Valid Modes option to be Satellite mode only (uncheck all others). Save ([**Apply**]) the task. This task will be used to take the satellite programming service off the air and ensure that the primary playback channel for XStudio is on the air. Further, it ensures that no matter what, the ***only*** audio that will go to air is coming from XStudio.
2. Create a new Start Play task. Name the task *"Play Local Break"*. Make sure the **Play from Log** property is checked (the default). Change the Valid Modes option to be Satellite mode

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only (uncheck all others). Save ([**Apply**]) the task. This task will be used to signal XStudio to play the audio items on the log that correspond to the break.

3. Create a new Update Switcher Task. Name the task *"CRM Return to Sat"*. In the Updated Switcher dialog, select the correct audio switcher. Turn row 1, channel 1 "On" (the programming service channel). Change the Valid Modes option to be Satellite mode only (uncheck all others). Save ([**Apply**]) the task. This task will be used to put the satellite programming service audio back on the air after completion of the local commercial break. Notice that for our example we didn't change the status of any other switcher input channels.

4. Create a new Action. Name the action *"CRM Commercial Break"*. Drag the tasks *"CRM Local Breakaway"*, *"Play Local Break"* and *"CRM Return to Sat"* into the Action Task List from the available tasks table, in order. XStudio executes tasks in an Action in the list order, so we want to be sure that only the XStudio playback channel is on the air, play the commercial break audio and finally, switch the satellite programming service back on the air.

5. Assign the new *"CRM Commercial Break"* Action to the corresponding Relay Input on the audio switcher. This in effect "connects" the Action to the satellite service's closure.

You've probably figured out by now that when XStudio executes an Action, it performs the Tasks in the list in order, one right after the other, until all Tasks in the list have been performed. You might be wondering how we get XStudio to wait long enough for all the commercials to play before switching back to the satellite programming service in this example.

The answer lies in the broadcast log construction and how XStudio handles a Start Play task when the task calls for playing audio from the log and the current operating mode is Satellite. Essentially, XStudio uses the log to communicate to the running Action the length of the commercial break and the Action automatically waits that long before performing the final Task in our example.

Commercial Break Log Format

The broadcast log (program schedule) has to be structured in such a way that at the time the satellite program service sends a signal for the local commercial break, XStudio knows which set of commercials (audio items) to play and the required length of the break. Additionally, the log determines whether or not XStudio actually plays a break or, because there are no commercials to play, in effect skips the break altogether, keeping the satellite program service on the air.

The key log element in all of this is the Log Directive. Specifically in our example, a Load Required directive is used. In our sample clock, there are a number of local breaks. We will focus on the break that the format clock indicates will occur at 20 minutes past the hour. Here's what needs to be done for 20-past local commercial break:

1. ***Position the Load Required directive on the log***. Most satellite programming services do not signal all local breaks at the specific time listed on the format clock. Instead, they are taken within a "window" of time, typically within plus or minus 5 minutes of the target time. In our example, this means the earliest the service will signal the break is 15 minutes past the hour, the latest would be 25 minutes past the hour. So, our Load Required directive needs to be placed at 14 minutes past the hour, one minute in advance of the ***earliest time*** the break will be signaled. When the PC clock hits 14-past, XStudio will mark the directive as "active", meaning that from that time forward (until another log directive becomes active), when the program service signals a break, it is the content associated with this directive that will be played.

2. ***Set the break length***. The Load Required directive has a field for entry for the length of the break. In our example, the 20-past break is 3 minutes (3:00).

3. ***Fill the break with audio content***. Basically, this means that you need to have items on the log immediately following the Load Required directive that add up to 3 minutes worth of playback time. All audio items on the log, beginning with the Load Required directive and

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continuing until the next log directive is found, are considered to be a part of the break. In our example, this means the audio items are associated with the 20-past break.

> ***XStudio treats Load Required and Load Optional directives in exactly the same way***.
>
> If there are no audio items associated with the directive (meaning no carts between the directive and the next directive), XStudio will skip the break entirely in Satellite mode regardless of the directive type.
>
> If there is at least one audio item associated with the directive, XStudio will play the break in Satellite mode. ***You must ensure that you have enough audio elements to "fill" the break*** - if the scheduled break length is 3 minutes, you must have 3 minutes of content scheduled on the log. There is no automatic backfill of audio to meet the required length.

For our example, the XStudio log would look similar to the screen capture shown.

Example Satellite break, as it appears in XStudio

Commercial Break Execution

Now that everything is set up, here's what happens when the satellite programming service signals a commercial break sometime between 3:15 PM and 3:25 PM using our example Action and log:

- XStudio locates the Action assigned to the commercial break closure, in this case the Action named *"CRM Commercial Break"*.
- The first task in the Action's task list turns all channels on the "to-air" audio switcher row off except the XStudio playback channel, which is turned on.
- When XStudio receives notice from the running Action that we are to play from the log, it locates the active directive (3:14 PM in our example) and checks to see if there are any audio items associated with the directive. If so, the length of the break is communicated to the running Action, which then waits for the length of the break before continuing to execute the next task in the list. Meanwhile, XStudio starts audio playback of the first log item following the directive (the Chevron spot in our example). As each audio item ends and signals EOM, the next item is played, until all items in the break have played. In Satellite

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mode, XStudio will not cross over a log directive to continue playing, so only the audio items on the log between the active directive and the next one on the log are played. During this time, the Action is waiting until the break length time expires.

- At 3 minutes since the audio playback started (based on our example break length), the last task in the Action task list is executed, updating the audio switcher to restore the satellite programming service channel back on the air.

If a break on the log is empty (contains no audio items), no wait time for the break is communicated to the running Action and the next task in the list is executed immediately. In our example, this would mean that the satellite programming service audio channel on the switcher would be turned off, then back on within just a few milliseconds. The effect from a listener point of view is that the programming service stayed on the air.

Because the local break length is controlled by the log, only one Action needed to be defined for our example, even though example format clock we used had different lengths for each break. As long as the log directive for each break had the correct length, we can use the same Action for all breaks in all hours, which simplifies programming for satellite automation.

Getting Things Started

When you are running satellite automation exclusively (as in our example), once you have produced a working daily log and set up the needed Actions, there's nothing to do to get the ball rolling as all activity is controlled by the satellite programming service.

In our example, XStudio starts up in Satellite mode and loads the daily log. So, when XStudio has completed its startup process, the correct log is loaded and the operating mode is correct. From there, it's a matter of waiting for the programming service to signal what it wants done.

Suspending Satellite Automation Manually

In our example, the radio station is running satellite automation 24 hours a day, 7 days a week. But what if we want to prevent XStudio from handling the Actions we have programmed for a period of time, say to run a 4-hour live show? In our example - and in many other cases - it's a simple process.

You can suspend automatic response to the program service signals by simply changing the XStudio operating mode to something other than Satellite. Use the main menu item **Options | Operation Mode** and select a different mode, like Live mode.

As soon as the mode is changed to something other than Satellite, the Actions we created will behave differently. For instance, if the Return Liner signal arrives from the programming service, XStudio will locate the Action named *"CRM Return Liner"* and begin executing its list of tasks, as before. However, since every Task in the list is valid only during Satellite mode, each task is ignored. Thus, no switcher update occurs and XStudio does not play the cart RL01 (the two tasks in the Action).

XStudio does make note of receipt of the signal from the programming service in the application event log and adds a record to the daily audit report data file.

When the live show is done, use the main menu **Options | Operation Mode** to select Satellite mode. XStudio will again process signals from the program service as normal.

5.7.1.1 Satellite Programming - Special Events

Special events programming while operating in Satellite mode might include satellite-delivered sports broadcasts, music specials like count-down shows or any other satellite-delivered programming that varies from normal operations. This example assumes you are familiar with and have constructed all

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the needed elements for your normal satellite programming operations.

The basic changes needed to transition to special event programming from "normal" programming in Satellite mode and eventually resume normal programming include:

- Changing how XStudio responds to relay closures during the time special programming is airing.
- Setting up Actions to handle the special event's join, local commercial break and program end signals. Depending on the type of program, there may be additional requirements.
- Revising the log to reflect the correct number and length of breaks to be used for the special program.
- Revising log directives so that local commercial breaks are handled strictly in sequence rather than being driven by time.
- Restoring normal operations at the conclusion of a special event program.

To make things as simple as possible for this example, the special event program we'll be working with is just one hour in length. When broadcasting a football game, for instance, it is likely the event would last up to 3 or more hours. The principals of setting up and executing the programming are the same, though. For longer events, there are just more commercial breaks and other requirements, like joining the game and finishing up the game, are the same as in our example.

Transitioning to a Special Event Program

When running satellite-delivered programming, there are normally a number of relay closures signaled by the programming service to do such things as play a liner, play a station ID, and play a commercial break to name a few. To transition to our example special program, we'll assume that a relay closure will be used to start the event, signaled by the program provider. If no such signal is available, you could perform the transition (or join) using a log directive or a scheduled event.

To join the special program, we need to open the correct channel on an audio switcher, disable response to relay closures for our regular programming, and make active relay closures that will be used to signal commercial breaks and and the end of the event. Here are the steps for our example:

1. Create an Update Switcher task to open the correct audio channel used for the event.
2. Create a Remap Input Relays task, which has the effect of "unhooking" relay closures you don't want to respond to during the event and connecting Actions to input relays so you do respond to the special program's relay closures. See step 5 for information on the special event relay closures - you may want to create those items ahead of time so you don't have to go back to this task item and revise it.
3. Create an Action that contains the two tasks described in steps 1 & 2.
4. Attach the Action created in step 3 to the input relay that will start the event. Note that we're attaching the start event Action to the default switcher input relay mapping. It is done this way since the default switcher input relay mapping will be in effect when the special event start is signaled.
5. Create any needed Tasks and Actions to handle things that will happen during the special event. Typically, there would be an Action to perform the breaks and an Action to resume normal programming at the end of the event as a minimum. You might also have a requirement for a station ID or audio bumpers. Any Actions that are to be active and signaled by the program service will need to be attached to the correct input relays in the Remap Input Relays task created in step

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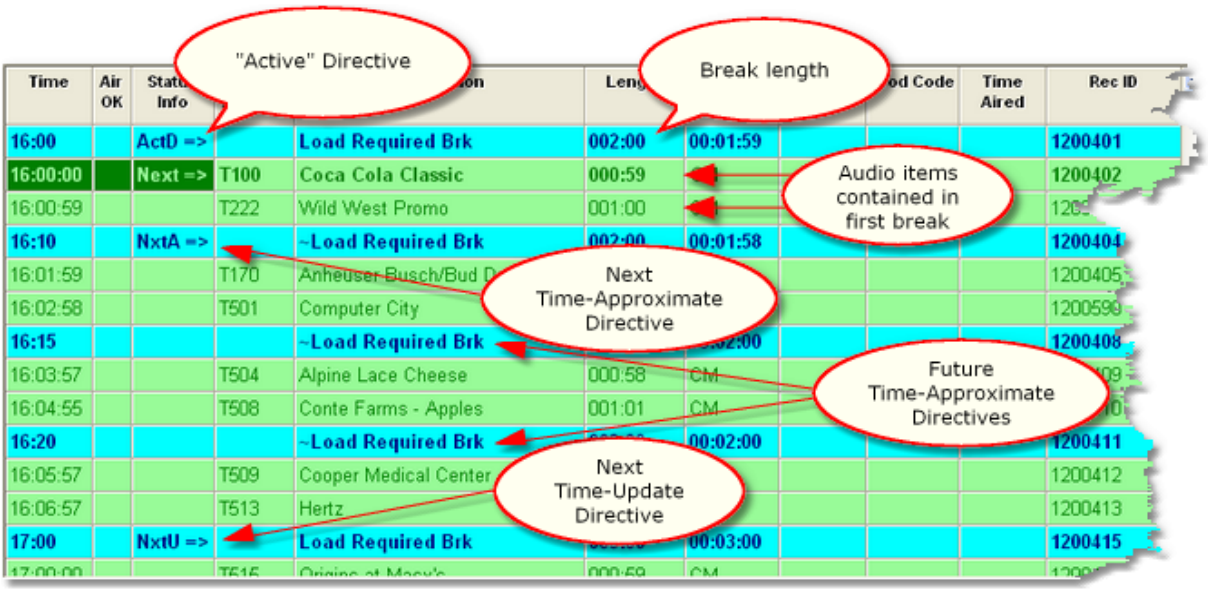
2. In our example, your Action to resume normal programming will include a second Remap Input Relays task which ***restores*** the default input relay mapping to the switcher.

Now, we're ready to join the special program when the program start is signaled by the provider. When program start is signaled, the Action created in step 4 above will be executed. The program's audio channel will be opened on the switcher and all normal relay closures will be inactive and just the special event relay closures will be responded to by XStudio.

Revising the Log

The main difference between normal programming and special event programming is how the log is constructed. Special events like sports broadcasts present a challenge in automated execution because the timing of commercial breaks is not predictable. The timing of local breaks is dictated by the flow of the game and they could occur at intermittent intervals. However, most events of this kind do have a fixed number of breaks that will be taken during the course of the event and the breaks will occur in order.

In order to tell XStudio that breaks are not time-sensitive, we use time approximate load directives for the in-event commercial breaks, as shown in our example log.



Special Event Log with Time Approximate Directives

In our example, the special event begins at 4:00 PM. The log has a standard load directive at that time, so at 4:00 PM, the first break of the special program becomes the "active" directive (active break). At this point, we will have received the start event signal from the programming service and the program is one the air. XStudio is positioned on the log for the first break and is awaiting the break relay closure.

You'll notice the next 3 directives on the log are time approximate directives and that the first of them is marked as the "**NxtA**" (next time approximate) directive. The 5:00 PM directive is a standard load directive - it's at that time we'll be returning to normal programming in our example.

When the first break is called for by the program provider, the 4:00 PM break in our example is played. At that point, XStudio marks the 4:10 PM time approximate directive as the "active" directive - meaning it will be the break played when the next relay closure for a break arrives. Unlike normal programming using standard load directives, though, XStudio "locks" onto this directive and will not move from it until the break plays. This means the break could com as late as 4:25 PM and unlike normal programming, the "locked" break will play even though there's a directive at 4:20 PM. In effect, once XStudio starts processing time approximate directives, the breaks are now played sequentially without regard for the

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time.

In our example, for instance, all three of the time approximate breaks could be called in the first 15 minutes of the hour or the last 15 minutes of the hour and all would be performed in sequence.

While all breaks in our example are of the same length, they could be different with no difference in how XStudio performs them. The key in that case is to match the lengths of the breaks in sequence to what the program provider will be doing.

Resuming Normal Satellite Programming

In our example, we handled a 1-hour program. You'll see on the example log that at 5:00 PM, we have a normal load directive (not a time approximate directive). The effect of this directive is that at 5:00 PM, regardless of where we are in terms of the playback of time approximate breaks, XStudio makes this directive the "active" directive. In short, our log is back to normal.

The program service sends its program end relay closure at the end of the event. In our example, that closure comes at 4:59:50. When XStudio detects the closure, it performs the end program Action you defined earlier, which in our example includes playing a 10-second station ID, a Remap Input Relays task that restores responsiveness your default relay closures, and an Update Switcher task that puts our normal program service back on the air.

5.7.2 Local Automation Programming Example

This example shows how to "program" XStudio for local automation. Local automation generally means that all content to be aired is placed on the broadcast log (schedule) and that XStudio is responsible for playing the audio from the log without user intervention.

For this example, we'll assume the station is programming a music format that it is locally automated all hours of the day, seven days a week, and that the XStudio default operating mode is Automation. You may wish to review the Program Start Options for XStudio, paying particular attention to the property settings for **Mode at Startup**, **Load Today's Log at Startup**, and **Play Log on Startup**.

We'll also describe how you can suspend local automation to run a live air shift.

Unlike running satellite automation, which was described in another programming example, running local automation with XStudio does not require use of an audio switcher unless you have special requirements or are running a mixed format, operating some hours of the day in local automation, others in satellite automation.

Constructing the Log

The key to running local automation successfully lies in constructing the broadcast log (program schedule). You can construct a log directly within XStudio or with one of our log editing tools. However, the most common method of constructing the log is to use a music scheduling system to create the music portion (plus fixed audio items like jingles, etc.), use a traffic system to create the commercial portion (commercials, scheduled promo's, etc.) and use our LogMerge utility software to combine or "merge" the two logs into a finished log that XStudio executes.

For this example, we are going to concentrate on the finished log and what it should contain rather than the mechanics of putting together the music and commercial logs. The combining or "merging" of the two dissimilar logs is covered in the LogMerge documentation and is not as complicated as it might sound. Once you get everything set up for the combining process, it takes very little time on a daily basis to produce a finished log for XStudio.

Here are some guidelines for a log to be used in local automation:

- We recommend that you use the music scheduling system and the log you export from it as the "master" log, placing everything you need to execute your format on the music log with

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the exception of commercial content, which would come from the traffic system. This allows the music and programming departments to control program flow, using the commercial log generated by the traffic system to fill in the commercial content only.

- There should be a Log Directive at the beginning of each hour, as a minimum. In a music format, this directive would typically be inserted in the music scheduling system format clock as the first element of the hour. Log Directives serve as markers in local automation. Placing one at the beginning of each hour makes the log more easily understood in the control room, and ensures that hourly content totals displayed in XStudio and our log editing software are accurate for a given hour. We suggest you use a Load Required directive for this purpose.
- The music content should be over-scheduled. How much and where in a given hour depends on the probability of being short on commercial content for an hour, the station format and your own judgment. The general idea is that you want enough music content for the hour to cover all eventualities, including missing or out-of-date commercials, a light commercial load that can occur on some days of the week, and any other factors specific to your station. The positioning of "throw-away" songs on the log is dependent on the format you've constructed for the station. We'll cover how you can skip the extra songs that you've used to "cover" for missing content or a light commercial load later in this topic, under the heading Staying "In Sync".

The desired end result is a log that contains all audio content you want XStudio to play, in sequence. Additionally, the log needs to contain any synchronization (updating to time) commands that you feel might be needed.

Getting Things Started

Now that we've produced a daily log that contains the things we need, it's fairly simple to get XStudio started running local automation. Unlike running satellite programming, though, you do need to actually start playing audio at the right point in the log. There are two scenarios to consider - what happens when XStudio is started (the program is launched) and initiating local automation when XStudio is already running.

1. ***XStudio is already running***. We'll assume that nothing is now playing. Since the program is already running and the log is ready for use, locate the audio item on the log closest to current time. Mark the log item as the Next-To-Play item. Ensure that current operating mode is Automation by using the main menu **Options | Operation Mode** to select Automation mode. Click on the Deck 1 [**Play**] button to start the marked cart.
2. ***Startup of XStudio***. Assuming the Program Start Options are set to **Mode at Startup** = Automation, **Load Today's Log at Startup** is checked (yes) and **Play Log on Startup** is checked (yes), there's nothing you need do. XStudio will load the current-day log during the startup process, locate the log item closest to current time and begin playing that item automatically. If the **Play Log on Startup** is not checked (no), then follow the instructions in the first scenario (scenario 1) when XStudio has completed its startup process.

In either scenario, once XStudio begins playing audio, you need do nothing more.

Staying "In Sync"

As a log is executed during the day, it is likely that you will end up with a bit of content drift - you might be playing the third-to-last element logged for the 2 PM hour, for instance, at 3:00:00 PM. If nothing is done, XStudio will play the last two elements of the hour before playing the first element of the 3 PM hour, which you'd intended play at the top of the hour. This can cause the sound of the station to be slightly off compared to what your painstakingly crafted format intended.

The usual cause is that you had a couple of extra songs scheduled in a hour to cover what you thought might be a shortage of commercial content, for instance. But the full commercial load was there, so the

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two extra songs (in our example) are not needed.

XStudio provides the means to get back on track - get synchronized with the clock - either in a non-intrusive way or a rather abrupt way. These methods are referred to as a "Soft Sync" and "Hard Sync", respectively. Both methods are driven by the log using a Directive Key added to a standard log directive.

> In the following examples, we show how to place a single synchronization command on the log for a given hour. There is not a limitation on this technique - you can place as many synchronization commands as are needed on the log.

Using the Soft-Sync Method

The Soft-Sync method is the most commonly used method of synchronization because it is not noticeable to the listener. To force a soft synchronization, modify a log directive that appears on the log (has a log time) at the time you want the synchronization to occur, or add a new Load Required directive with the desired log time. Add a Cast-Off directive key to the directive. As viewed in XStudio, the log appears similar to the example shown.

Soft-Sync directive key, as it appears in XStudio

In our example, when the clock reaches 3:00:00 PM, XStudio detects the synchronization key and sets the Next-To-Play marker to the first element following the directive. The effect is that XStudio skips over any remaining unplayed audio for the preceding hour and when the audio currently playing reaches EOM, it starts playing the first audio item following the directive. Since this occurs when the currently playing audio finishes, the actual start time of the next audio will vary with the remaining play time of the active audio. Thus the term "Soft-Sync", which means we got "close" rather than exact.

Refer to the definition of Soft-Sync and the Cast-Off directive key documentation for additional information.

Using the Hard-Sync Method

As the name implies, the Hard-Sync method of synchronizing playback to a particular time is an abrupt method, but it is more exact. Like the soft synchronization method, hard synchronization is driven adding a directive key to a log directive. Change an existing directive or create a new one for the specific time you want the synchronization to occur. Add a Hard Sync directive key to the directive. As viewed in XStudio, the log appears similar to the example shown.

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Hard-Sync directive key, as it appears in XStudio

In our example, when the clock reaches 3:00:00 PM, XStudio detects the synchronization key and sets the Next-To-Play marker to the first element following the directive, as with the soft synchronization method. However, in hard synchronization, ***XStudio stops all audio playing on the primary playback channel (channel 1) and immediately starts playing the first audio item following the directive on the log***. The synchronization is immediate and abrupt, hence the term "Hard Sync". Since XStudio begins playing the next audio item on the log immediately rather than waiting for EOM of the currently playing item, synchronization of the scheduled air play time with the clock is very close, generally within a few milliseconds.

Refer to the definition of Hard-Sync and the Hard Sync directive key documentation for additional information.

Suspending Local Automation Manually

In our example, the radio station is running local automation 24 hours a day, 7 days a week. But what if we want to run a 4-hour live show? In our example - and in many other cases - it's a simple process.

You can suspend local automation by simply changing the XStudio operating mode to something other than Automation. Use the main menu item **Options | Operation Mode** and select Live mode.

As soon as the mode is changed to Live, XStudio will no longer perform the synchronization commands we described earlier. It will continue to play the log until you interrupt playback in some way and take control of playback. For instance, you may simply turn auto-segue off (turn off the [**Auto**] button on the primary transport) and wait until the currently playing audio finishes. At that point, it's all up to you. Running a live shift when you normally run local automation is pretty simple, since the log probably contains all content you need to play back - plus you have the flexibility to move items around and do the normal things you might do during a live show, like taking phone calls and putting them on the air, etc.

When the live show is done, use the main menu **Options | Operation Mode** to select Automation mode. Start playing an audio item from the log and XStudio will continue from there, playing the log in sequence. Any synchronization commands on the log are again active.

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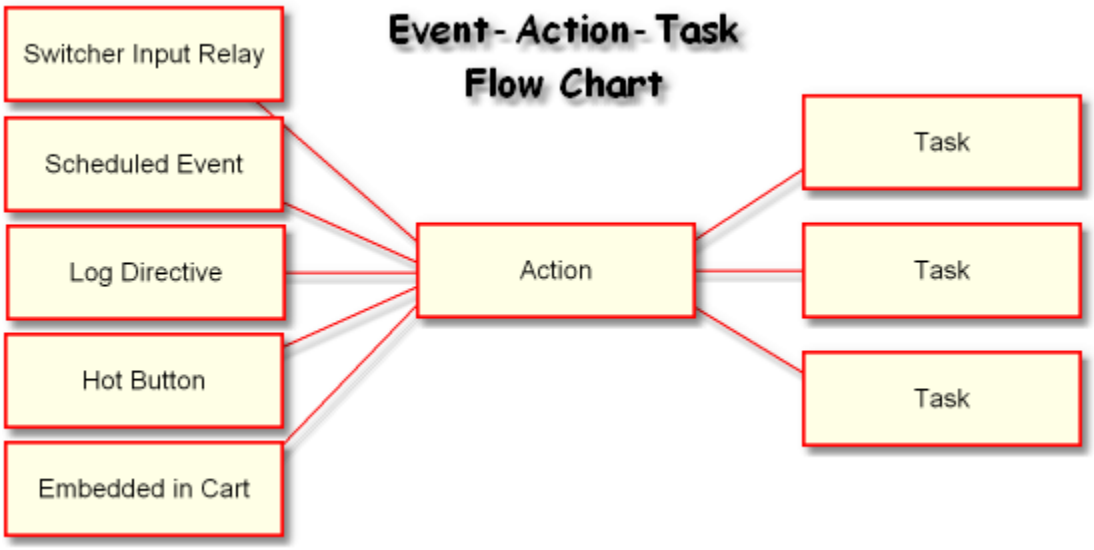
5.8 Task Reference

Tasks are a core component of XStudio automated execution. Each task does only one specific thing, unlike some systems where multiple actions are taken within a single task. This approach allows for greater flexibility, as tasks can be reused easily without concerns about side effects of anything done in addition to performing the basic task.

Tasks are combined with other tasks to form what is known as an Action, which is simply an ordered list of tasks. When an Action is run, its list of tasks is performed, in order. Actions can be initiated in several ways, including associating the action with an audio switcher input relay, as a scheduled event, as a log directive, using a hot button or as an action embedded in a cart play.



Available Tasks

XStudio supports a number of different types of tasks, each with a specific purpose. The table below lists available tasks along with a short description of each. Use the links to review detailed information on a specific task type.

Task Type (Alphabetical)	***Description***
Banner Message	Display a text message in the XStudio Message Center dialog.
Remap Input Relays	Change or reset input relay mapping for an audio switcher.
Send Control Command	Send a control command to an external device via the external control port (serial port).
Set Auto-Segue	Set log Auto-Segue on or off.
Set Clock	Sets the system clock to the specified minute and second of an hour.
Set Mode	Sets the operating mode of the system, e.g, Emergency, Automation.
Set Voice	Sets the global voice number of the system, used in conversion of the **##** macro characters.

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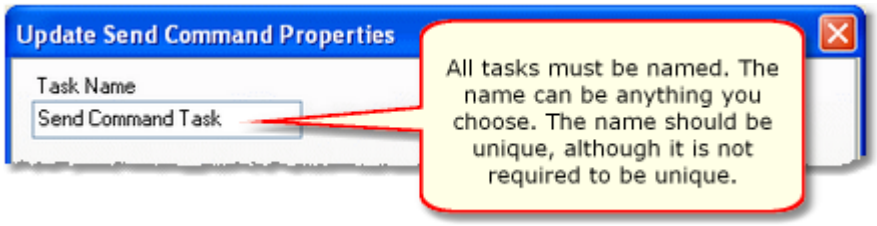
Task Type (Alphabetical)	*Description*
Start Play	Start playback of audio from the log or from a list of carts (audio files).
Stop Play	Stop play of audio on a selected channel, either by channel or by cart number.
Switcher Fade	Fade a single channel, up or down, on a selected audio switcher. Only a few audio switchers support this feature.
System Backup	Backup system database files and optionally, XStudio preference and settings files.
Timer	Delay task execution a specified amount of time. Effectively a "wait" command.
Update DOut	Pulse a single DOut on a selected switcher. Not all devices support DOut pulsing.
Update Switcher	Turn on or off input channels for a specific audio switcher.
Use Existing Action	Use an existing Action as a Task. In effect, "nests" an action within an action.

5.8.1 Properties Common to All Tasks

There are two kinds of properties common to all tasks - a **Task Name**, which appears on the main page of the task dialog, and a set of execution control properties.

Task Main Page Properties

The Task Name property is common to all tasks and appears as the first edit field on a task's main window, as shown. All tasks must be named (non-blank).


Update Send Command Properties
Task Name
Send Command Task
All tasks must be named. The name can be anything you choose. The name should be unique, although it is not required to be unique.

Task Name maximum length is 30 characters

The task name is used for reference purposes to help you identify what the task is used for. A task can be named anything you like, up to a limit of 30 characters, and should be meaningful to you. The task name does not have to be unique, but it is recommended, as the name is displayed in lists, etc, and if the names are unique, there's less chance of confusion.

Task Advanced Properties (Mode/Days)

All tasks provide a set of properties to control whether or not the task will be executed at run time. These properties include:

- System Operating Mode
- Day of Week

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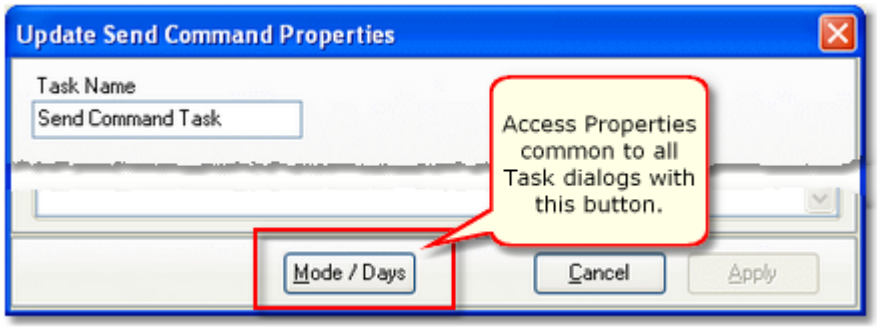
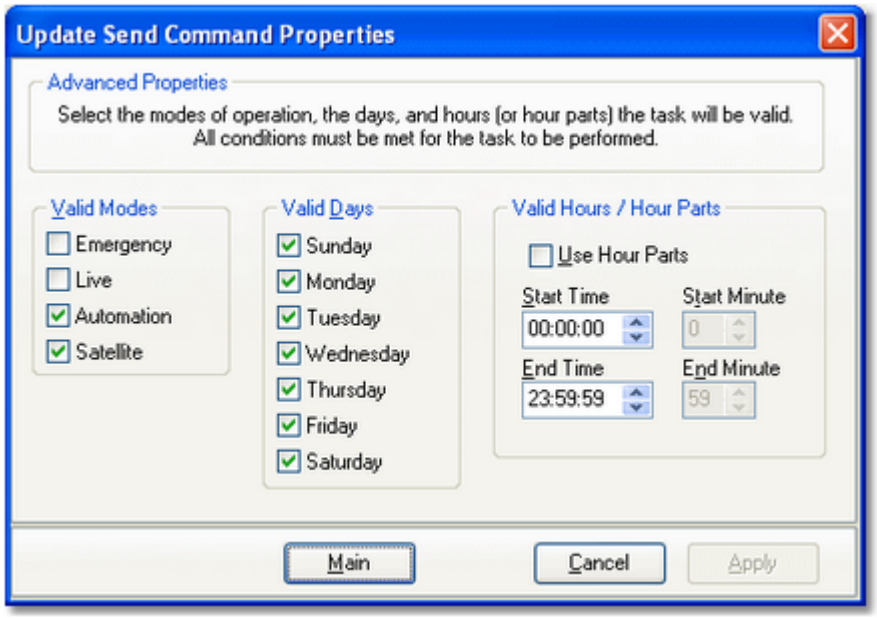
- Time of Day (Day Part or Hour Part)

Access these properties from any task dialog with the [**Mode/Days**] button.



The Advanced Properties allow you to set conditions that must be met for the task to be performed. Note that ***all conditions must be met for the task to execute***.



Default Advanced Properties Settings

Valid Modes

At least one mode must be selected for a task to be valid. You will not be allowed to apply changes to a task until one or more modes are selected.

Valid Days

At least one day must be selected for a task to be valid. You will not be allowed to apply changes to a task until one or more days is selected.

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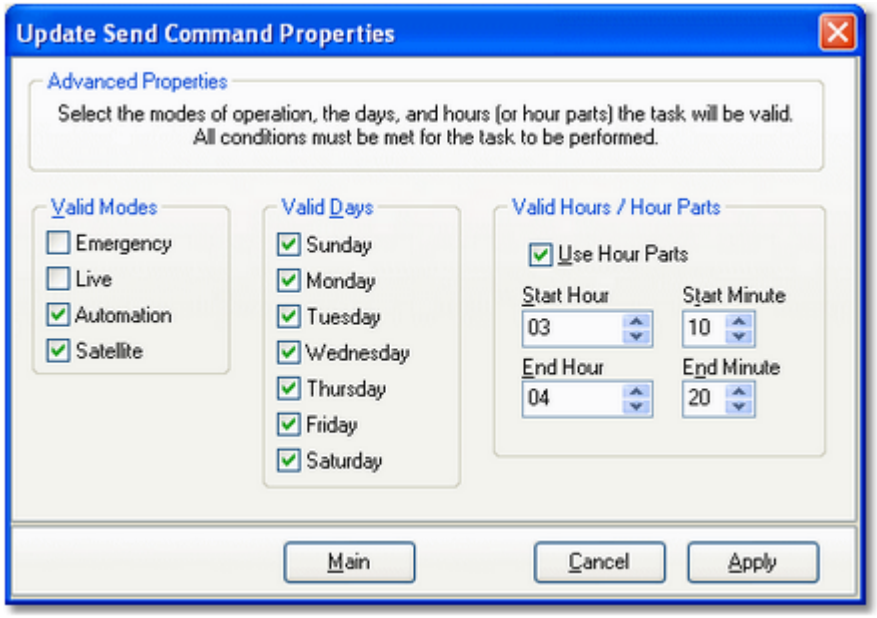
Valid Hours / Hour Parts

When determining whether a task is valid for execution, you can limit valid times of the day to either a contiguous time range (sometimes called a Day Part) or a specified range of minutes within a specified range of hours, called Hour Parts.

An **hour range** is simple to understand - there's a beginning time and an ending time, and if the task execution attempt occurs within that time range, it is considered valid and executes. The default value for the time of day property is 00:00:00 through 23:59:59, which means the entire day. You can use this type of range to allow a task to execute, for example, between 4:00 PM and 5:59:00 PM only.

An **hour part range** is a bit more complex. As shown in the example, you set beginning and ending hours and separately, beginning and ending minutes within each of the valid hours.



Advanced Properties Settings using Hour Parts

In the example, the beginning hour is 3 AM and the ending hour is 4 AM. The beginning and ending minute values are 10 and 20, respectively. In short, this time restriction means that the task will execute only in the following time ranges:

- 3:10:00 - 3:20:59 AM (note the seconds values)
- 4:10:00 - 4:20:59 AM (note the seconds values)

Using hour parts allows you to refine a task's valid execution time to only certain minute ranges within specified hour ranges, providing a very flexible means of controlling task execution times.

More About Start Minute and End Minute Values

When using **Hour Parts** to set the valid times a task can run, you may have noticed there is no provision for a ***seconds*** value, as there is in the standard Hours entries. In task validation, they are handled in the following way:

- **Start Minute** - the seconds value is zero, i.e. 10:***00***
- **End Minute** - the seconds value is 59, i.e. 20:***59***

This means that if we set a valid minutes range within an hour to 10 through 20, it actually is 10:00

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through 20:59. In this example if you did not want the task to execute beyond 20 minutes past the hour, you could set the End Minute value to 19, which would allow the task to execute from 10:00 through 19:59, thus excluding the 20:00 past the hour time.

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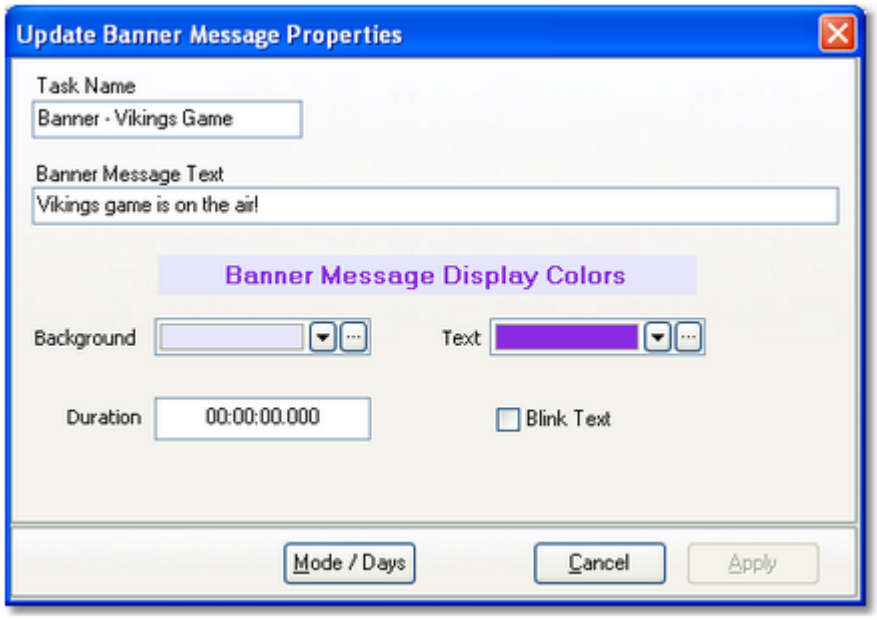
5.8.2 Banner Message Task

The Banner Message task is used to display user-defined text in the XStudio Message Center. This task can be used to inform operators of system status changes, special events that might be currently airing and "reminder" messages.



Banner Message Properties

Items with a check mark in the **REQ** column require user entry, while unchecked items have default values which can optionally be changed.

Property	***REQ***	***Description***
Task Name	✓	The user-friendly name of the task. See Common Properties for more information.
Banner Message Text	✓	The text that will appear in the XStudio Message Center when the task is executed. Text length is not limited, but longer messages may not display completely depending on the user-adjusted size of the Message Center display panel. Text should be the minimum necessary to convey the intent of the message.
Background Color		This property sets the XStudio Message Center background color when this task's message is displayed.
Text Color		This property sets the the XStudio Message Center text color when this task's message is displayed.
Duration		Default value: 00:00:00.000. This property determines whether or not the banner message will be automatically cleared after a certain period of time. If the value is non-zero, the message will be cleared automatically after the entered time value, in hours, minutes and seconds, has elapsed, starting from the time the message is displayed.

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Property	***REQ***	***Description***
Blink Text		Default: Unchecked. If checked, the message text will be blink on and off when displayed in the XStudio Message Center.

Text displayed in the Message Center remains until replaced by another Banner Message task, the duration of the message (if greater than zero) has elapsed, or an operator manually clears the message from the Message Center.

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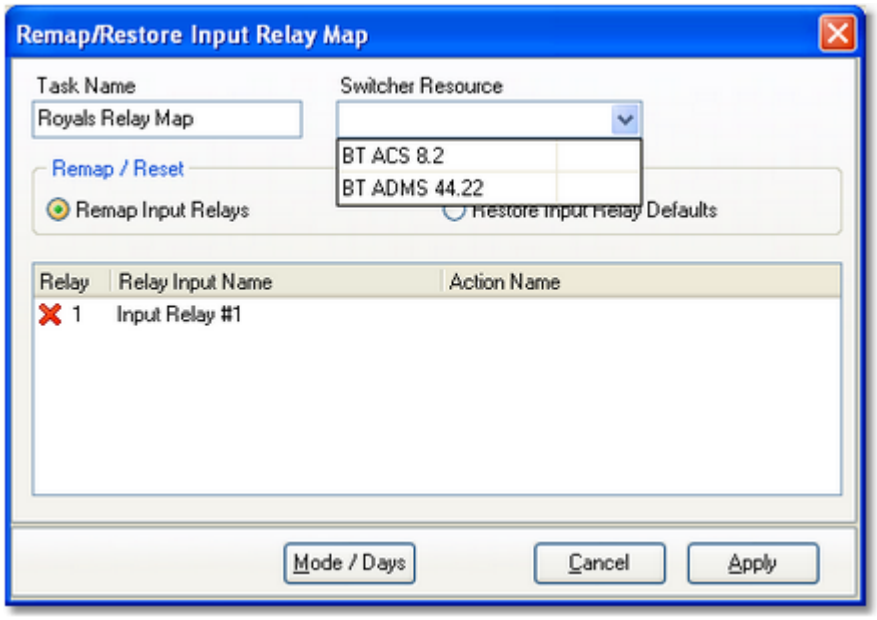
5.8.3 Remap Input Relays Task

The Remap Input Relays task is used to change or reset input relay mapping for an audio switcher. This task is useful for situations where you may wish to disable (or "unhook") input relay actions used for normal programming, replace them with a different set of actions enabled (or "hooked") to input relays for a special event, and later restore the "default" input relay mapping when programming returns to normal.



Remap Input Relays - Selecting the Switcher

When remapping or restoring input relays with this task, any input relay lock-out values originally assigned to the resource are not changed.

Remap Input Relays Properties

Items with a check mark in the **REQ** column require user entry, while unchecked items have default values which can optionally be changed.

Property	***REQ***	***Description***
Task Name	✓	The user-friendly name of the task. See Common Properties for more information.
Switcher Resource	✓	Select the audio switcher that will be used for this task from the drop down list. When a device is selected, the appropriate number of input relays and their labels are displayed in the relay map table. If the selected device does not have input relays, you are prompted to select a different device from the list.
Remap / Reset	✓	Select the radio button item appropriate for what you want to accomplish. The default selection is "**Remap Input Relays**", which allows you to select each available input relay and associate an Action with it. If the "**Restore Input Relay Defaults**" radio button

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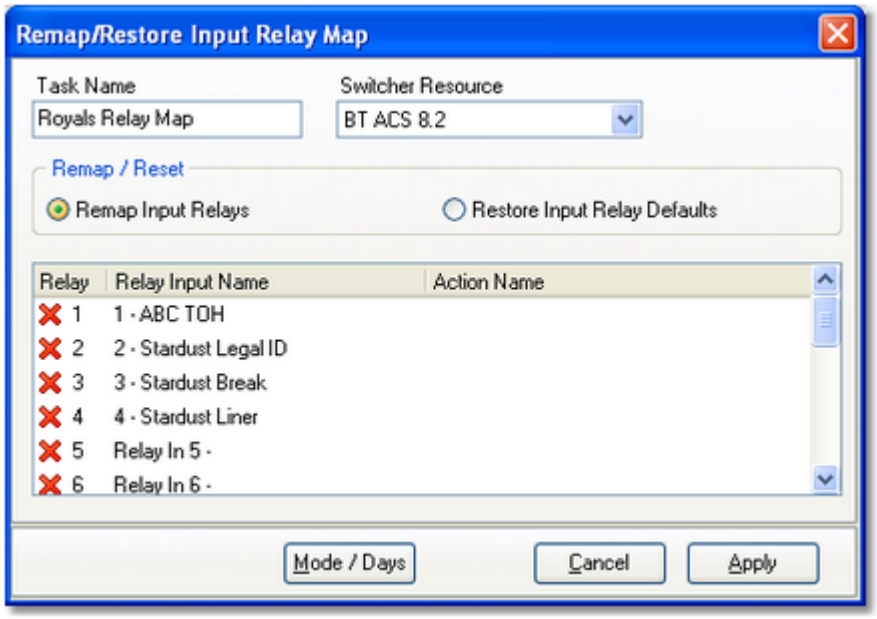
Property	REQ	Description
		item is selected, the Relay Map Table is disabled and when the task is executed, the selected device's original input relay mapping is restored.
Relay Map Table		Displayed input relays for the selected device are listed, initially with no Actions assigned to any of the input relays. Select the desired input relay and either [**Double-Click**] on the item or [**Right-Click**] and select the menu item "**Assign Action** ..." to display an Action selection dialog.



Remap Input Relays - Device Selected

Assigning Actions to Input Relays

When a switcher resource has been selected and the device's input relay list is displayed, you can begin assigning Actions to the input relays. The easiest way is to locate the input relay you want to assign by scrolling through the list.

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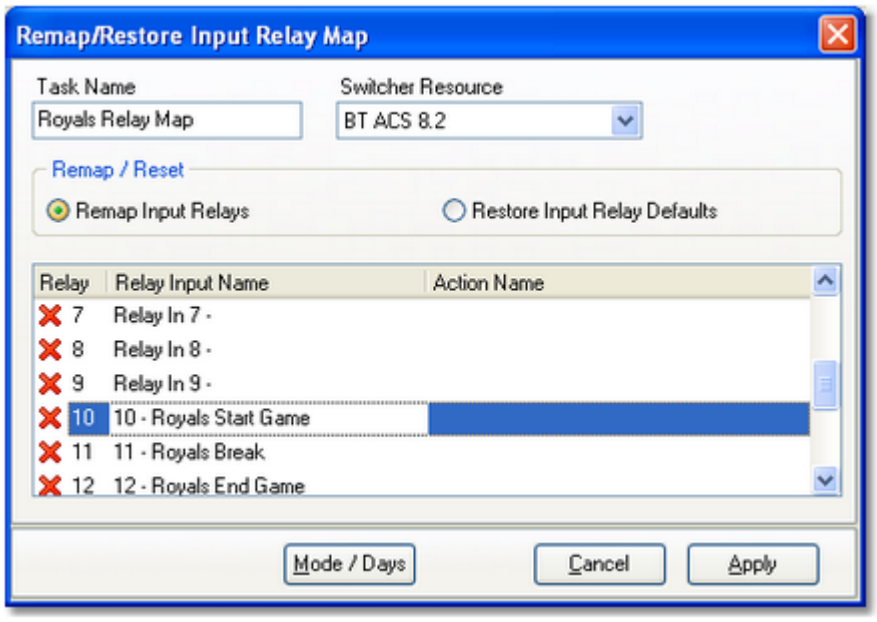

Selecting an Input Relay to Remap

To assign an Action to an input relay, [**Double-Click**] on the input relay to display the **Assign Action to Relay Input** dialog. Alternatively, you can [**Right-Click**] on the selected input relay and select the menu item "**Assign Action** ..." to display an Action selection dialog.

Selecting an Action to assign

When you have completed all of the input relays that need to be mapped, click on the [**Apply**] button to save the task. A sample of a completed assignments is shown here.

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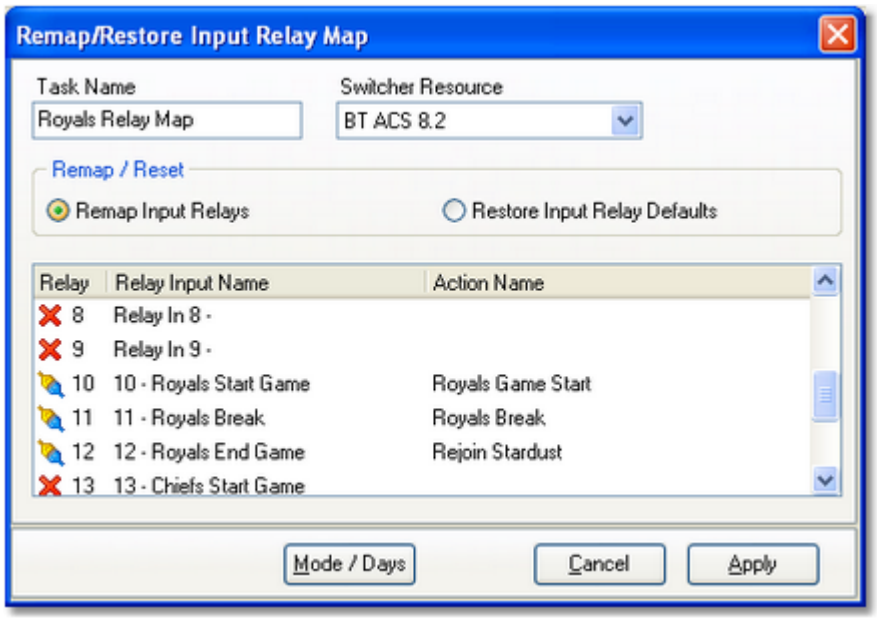
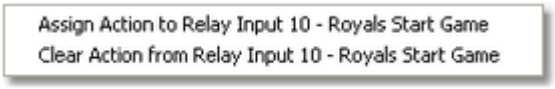


Remap Input Relays complete.

> **Hint** To disable all input relays for the device, select the "Remap Input Relays" option and do not assign an Action to any of the available input relays. When the task is executed, it will essentially "unhook" all relays.

Clearing (Removing) an Action from an Input Relay

If you wish to remove an Action assigned to an input relay, [**Right-Click**] on the input relay to be changed and select the pop-up menu item "**Clear Action...**" The Action associated with the selected input relay will be removed.



Assign / Clear Action Pop-up Menu

Restore Input Relay Mapping

To restore the selected switcher resource's default input relay mapping, select the "**Restore Input Relay Defaults**" radio button item in the Remap / Reset option group. The Relay Map Table is disabled, as it will not be used. Click on the [**Apply**] button to save the task.

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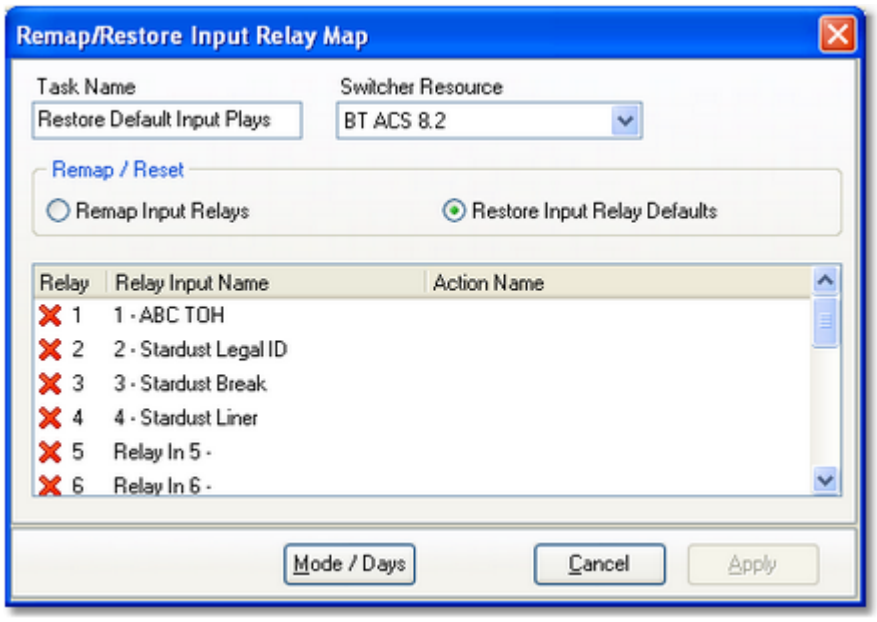

Restore Default Input Relay Mapping

When this task is executed with the Restore Input Relay Defaults option, the switcher resource's original input relay settings are restored from the device's resource record.

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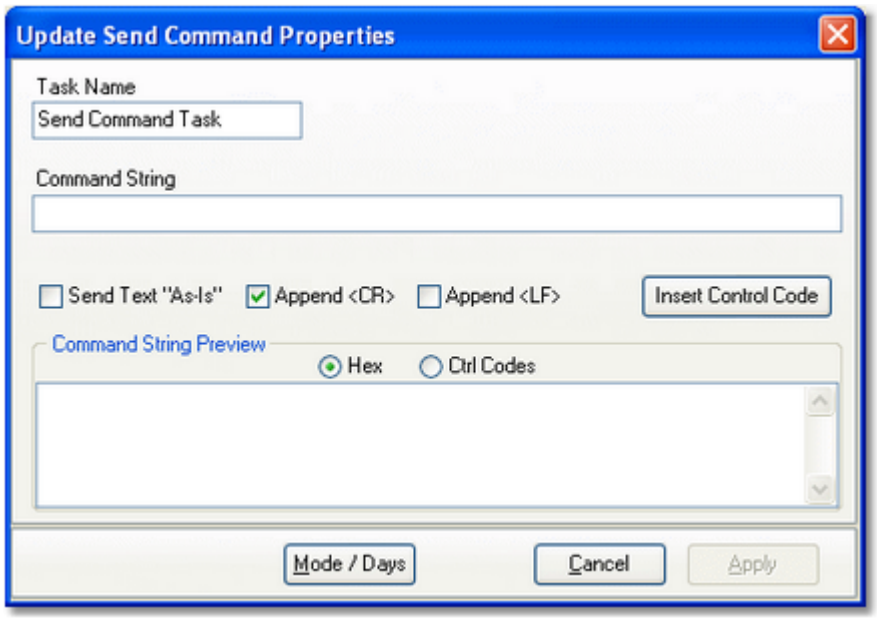
5.8.4 Send Control Command Task

The Send Control Command task is used to send a string of data to an external device for purposes of controlling the device or causing it to take some action. The data string can be sent as pure text or as binary information. This is a send-data-only task; any information returned by the device is ignored.

When creating a new Send Control Command task, the dialog is initially displayed similar to the example shown here, with its default property settings.



Send Control Command Properties

Items with a check mark in the **REQ** column require user entry, while unchecked items have default values which can optionally be changed.

Property	***REQ***	***Description***
Task Name	✓	The user-friendly name of the task. See Common Properties for more information.
Command String	✓	The characters, including optional control codes, that are to be sent to the external device.
Send Text As-Is		If this property is checked, the data sent will be exactly as displayed in the Command String field. Control codes are represented as "**<xxx>**" in the Command String field, if inserted, and are normally interpreted to their binary value (Decimal 0..31) when the command string is sent. As an example, if the "ACK" value (Decimal 6) needs to be sent, it is represented in the Command String as "<ACK>" and at send time, the decimal byte value 6 is sent. If this property is checked, what will be sent instead is "<ACK>" as plain text, which is 5 bytes, ie, the displayed text of the Command String with no interpretation.
Append <CR>		When this property is checked (the default), a Carriage Return (Decimal 13, Hex 0D) is appended to the Command String when

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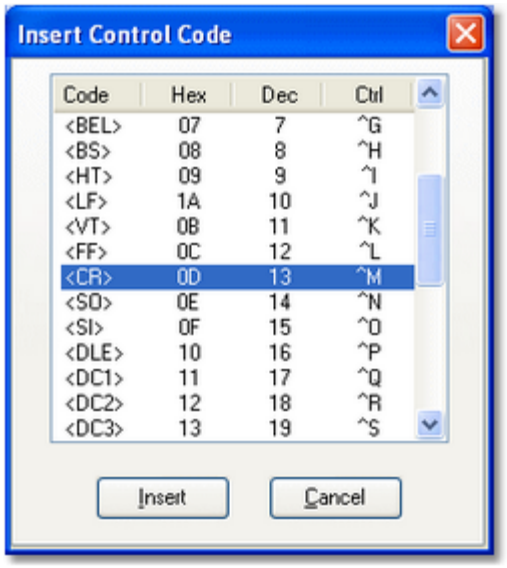
Property	REQ	Description
		sent to the external device.
Append <LF>		When this property is checked, a Line Feed (Decimal 10, Hex OA) is appended to the Command String when sent to the external device.

When both Append <CR> and Append <LF> are checked, they are appended to the Command String in conventional order - Carriage Return followed by Line Feed. If you need to reverse this order, use the [**Insert Control Code**] button to insert them manually directly into the Command String and uncheck both of these properties.

Inserting Control Codes in the Command String

Control codes are defined as Decimal values 0 through 31 and as the name implies, are traditionally used for special "control" characteristics of a device receiving the Command String. Control codes might be used to mark the beginning or end of a command sequence, for instance.

Control codes can be placed anywhere in the Command String field, either by correctly typing the control code representation or using a pop-up control code selection dialog. Place the cursor in the position in the Command String field where you want to insert a control code and click on the [**Insert Control Code**] button.



Control code insertion dialog

Select the control code you wish to place in the Command String and click on the [**Insert**] button. The control code representation will be inserted at the cursor position.

Send Command Examples

When you have finished setting the Send External Command properties, the displayed information will appear similar to the examples shown here, with the command string previewed in either Hex or Control Code mode. Click on the [**Apply**] button to save your changes.

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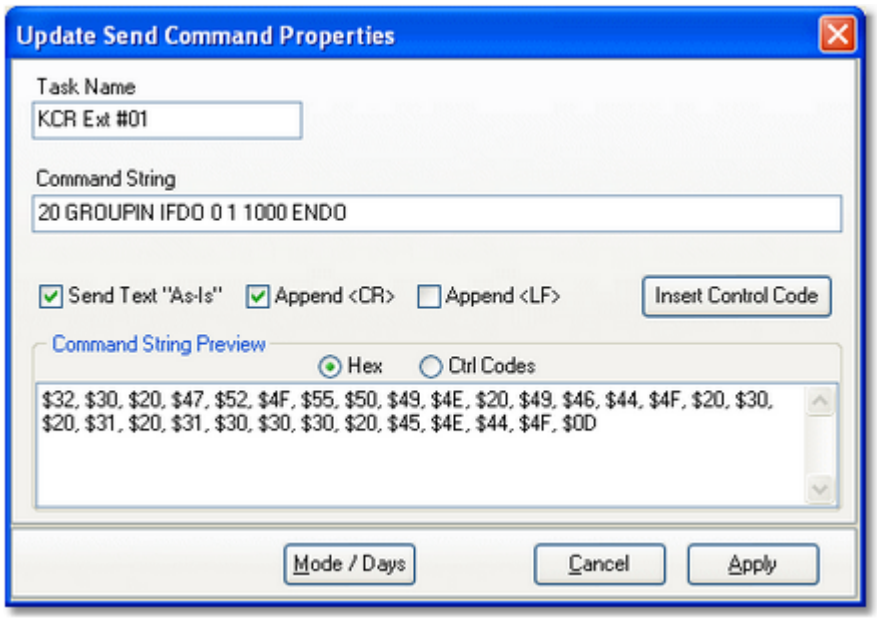
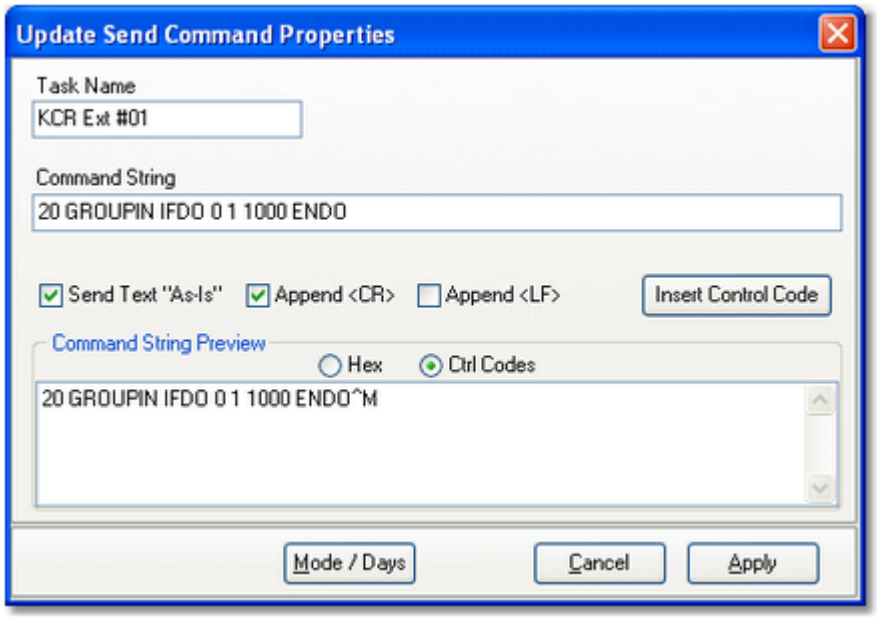

Update Send Command Properties
Task Name
KCR Ext #01
Command String
20 GROUPIN IFDO 0 1 1000 ENDO
Send Text "As-Is"
Append <CR>
Append <LF>
Insert Control Code
Command String Preview
Hex
Ctrl Codes
$32, $30, $20, $47, $52, $4F, $55, $50, $49, $4E, $20, $49, $46, $44, $4F, $20, $30, $20, $31, $20, $31, $30, $30, $30, $20, $45, $4E, $44, $4F, $0D
Mode / Days
Cancel
Apply

Command String preview in Hex



Command String preview in Control Codes

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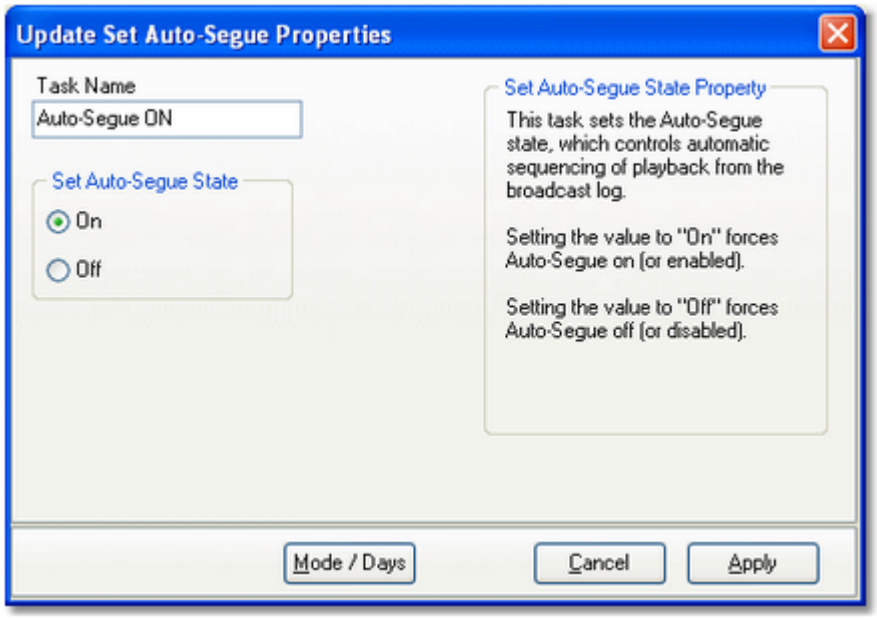
5.8.5 Set Auto-Segue Task

The Set Auto-Segue task is used to set the auto-segue state of the host application on or off. The auto-segue state controls automatic sequencing of audio playback from the broadcast log, If the auto-segue state is On, sequencing from one log item to the next occurs automatically when the item's Aux Mark (EOM) is signalled. If auto-segue state is Off, automatic sequencing does not occur.


Update Set Auto-Segue Properties
Task Name
Auto-Segue ON
Set Auto-Segue State
On
Off
Set Auto-Segue State Property
This task sets the Auto-Segue state, which controls automatic sequencing of playback from the broadcast log.
Setting the value to "On" forces Auto-Segue on (or enabled).
Setting the value to "Off" forces Auto-Segue off (or disabled).
Mode / Days
Cancel
Apply

Auto-Segue Properties

Items with a check mark in the **REQ** column require user entry, while unchecked items have default values which can optionally be changed.

Property	***REQ***	***Description***
Task Name	✓	The user-friendly name of the task. See Common Properties for more information.
Auto-Segue State		Set the property to On or Off.

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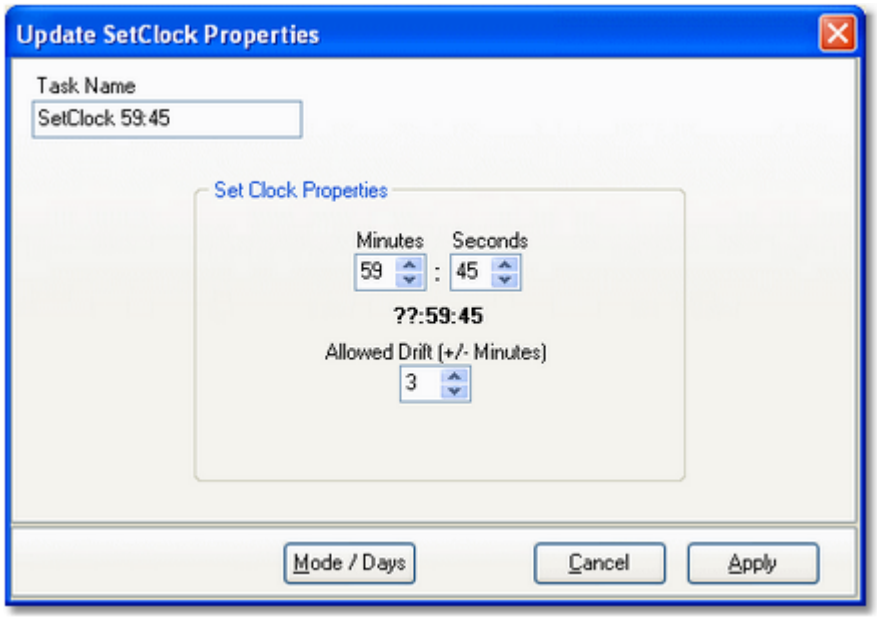
5.8.6 Set Clock Task

The Set Clock task is used to reset the time on the host PC, typically signaled by an external source such as a fixed-time relay (closure) from a satellite programming service. When this task is executed, the minutes and seconds of the hour are set. You can control how much adjustment is allowed with the Allowed Drift property.



Set Clock Properties

Items with a check mark in the **REQ** column require user entry, while unchecked items have default values which can optionally be changed.

Property	***REQ***	***Description***
Task Name	✓	The user-friendly name of the task. See Common Properties for more information.
Minutes		The minute value of the hour that is set when this task is executed.
Seconds		The seconds value of the hour that is set when this task is executed.
Allowed Drift		The amount of time, expressed in plus or minus minutes from the target time, that will be used to decide if the clock is updated. For instance, if the target time is 59:45 and the Allowed Drift is 3 minutes (the default), the clock would only be updated if the PC's clock time falls within 56:45 to 02:45 of the next hour. In this example, the clock would only be reset if it had drifted no more than 3 minutes either way from the target time. If the PC clock's current time falls outside the Allowed Drift window when the task is executed, the clock is not updated.

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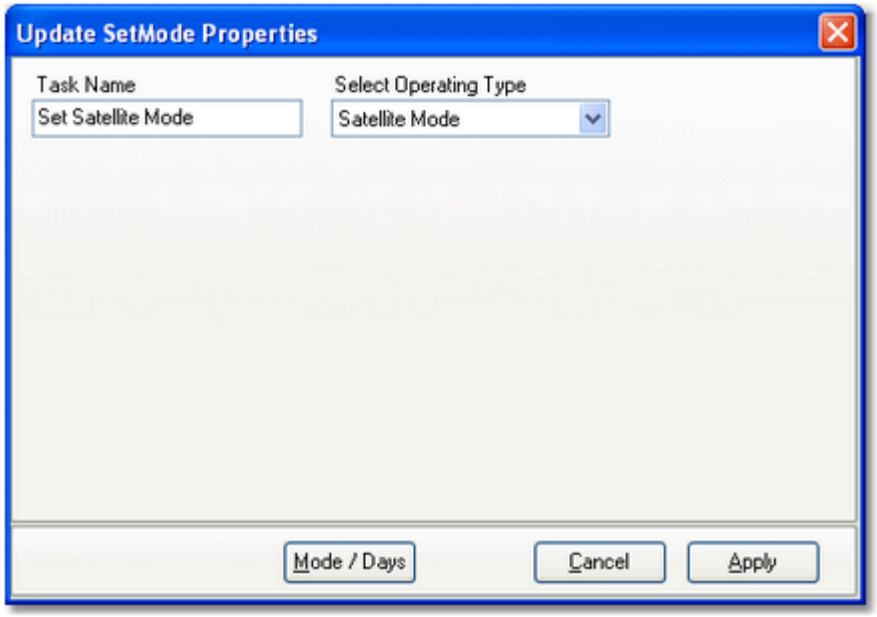
5.8.7 Set Mode (Operating Mode) Task

The Set Mode (Set Operating Mode) task is used to set the current operating mode of the system. There are 4 modes from which to choose:

- **Emergency**
- **Live**
- **Automation**
- **Satellite**

The operating mode affects how the system reacts to things like log directives, input relays and a number of other events that occur. This task is most often used when transitioning to and from satellite programming.



Set Mode Properties

Items with a check mark in the **REQ** column require user entry, while unchecked items have default values which can optionally be changed.

Property	***REQ***	***Description***
Task Name	✓	The user-friendly name of the task. See Common Properties for more information.
Operating Type		Select the appropriate mode item from the dropdown list. The default is "Automation".

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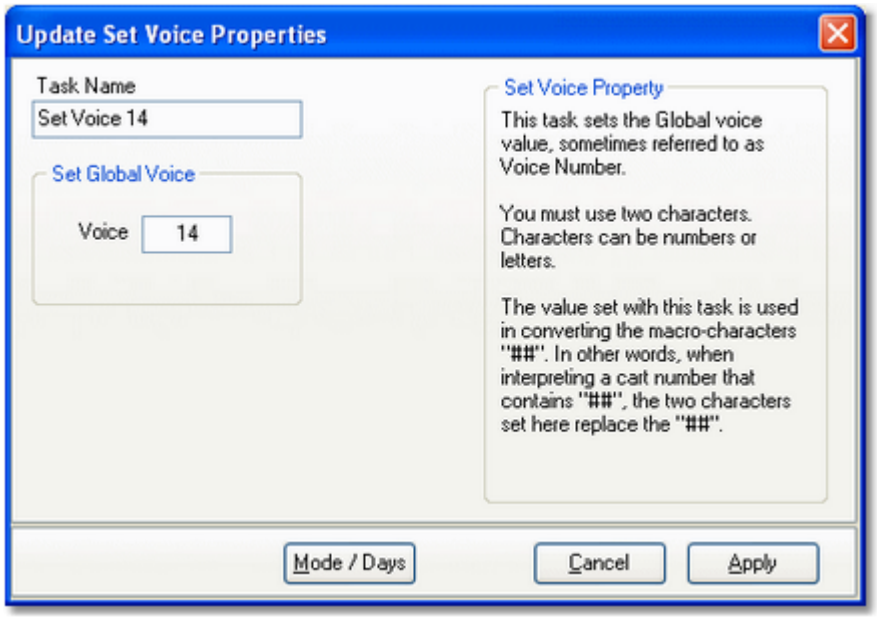
5.8.8 Set Voice Task

The Set Voice task is typically used in conjunction with satellite programming. Programming services will often provide liners, splitters, etc, done by the program hosts. These liners are then signaled by the programming service at various times. As the host changes, the custom liners, etc, need to change as well.

Rather than creating many different tasks that play different cart numbers, you can use this task to set a 2-character value for the so-called "voice number". Then, you can create a single liner playback task, for instance, that uses the current voice number to dynamically determine what cart number to play. The macro characters "##" (pound sign twice) are used for this purpose in cart numbers. For instance, if the current voice number is "14" (shown here), then a liner cart play with a cart number of "LI##" would become "LI14" when called for playback.


Update Set Voice Properties
Task Name
Set Voice 14
Set Global Voice
Voice
14
Set Voice Property
This task sets the Global voice value, sometimes referred to as Voice Number.
You must use two characters. Characters can be numbers or letters.
The value set with this task is used in converting the macro-characters "##". In other words, when interpreting a cart number that contains "##", the two characters set here replace the "##".
Mode / Days
Cancel
Apply

Set Voice Properties

Items with a check mark in the **REQ** column require user entry, while unchecked items have default values which can optionally be changed.

Property	***REQ***	***Description***
Task Name	✓	The user-friendly name of the task. See Common Properties for more information.
Voice	✓	Enter the 2 characters that the global voice number is to become. You must use 2 characters and they can be in the range 0..9 and A..Z.

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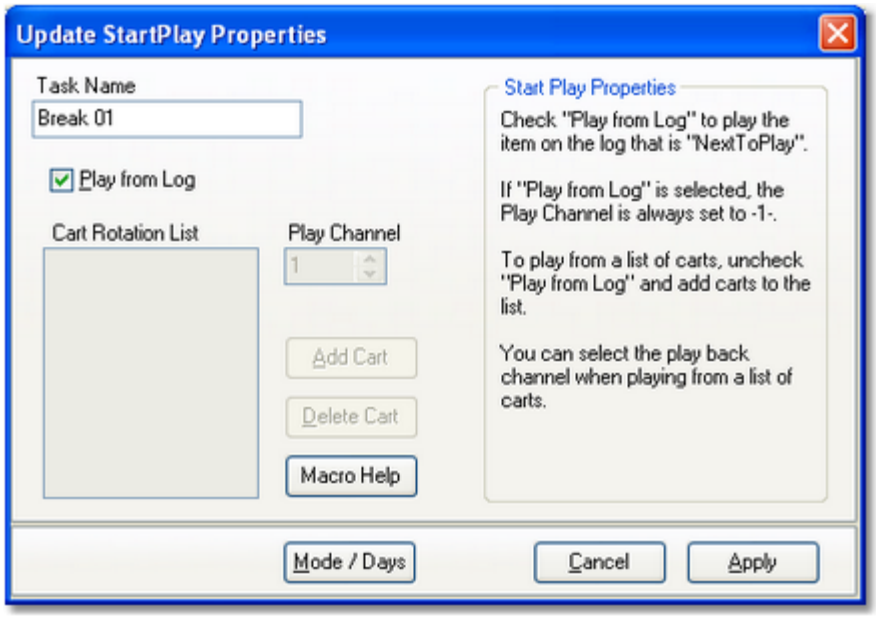
5.8.9 Start Play Task

The Start Play task is used to begin playing items on the log - like a commercial break - or to play a specified cart (audio item) to a specific play channel. The most common uses of the Start Play task are to initiate a local commercial break in satellite programming, or to play a jingle, liner, or splitter as a part of satellite programming.


Update StartPlay Properties
Task Name
Break 01
Play from Log
Cart Rotation List
Play Channel
1
Add Cart
Delete Cart
Macro Help
Start Play Properties
Check "Play from Log" to play the item on the log that is "NextToPlay".
If "Play from Log" is selected, the Play Channel is always set to -1-.
To play from a list of carts, uncheck "Play from Log" and add carts to the list.
You can select the play back channel when playing from a list of carts.
Mode / Days
Cancel
Apply

Start Play task for playing from the log

Start Play Properties

Items with a check mark in the **REQ** column require user entry, while unchecked items have default values which can optionally be changed.

Property	***REQ***	***Description***
Task Name	✓	The user-friendly name of the task. See Common Properties for more information.
Play From Log	✓	Check this item to play items from the program log. If checked, no other properties need be set except for the Task Name.
Cart Rotation List		When the Play From Log property is **not** checked, this list is enabled for adding and deleting specific cart numbers to play. The list must contain a minimum of one cart number. To manage the list contents, use the [**Add Cart**] and [**Delete Cart**] buttons. Cart number macro characters can be used as a part of the cart number. When multiple cart numbers are placed in the list, the items are rotated when the task is executed multiple times while XStudio is running. At program start-up, the first item in the list is used the first time the task is executed and subsequent execution of the task uses the next item in the list and so on.
Play Channel		Select the play channel (1-4) on which items from the cart list will be played. This item is enabled only if the Play From Log property is not checked.

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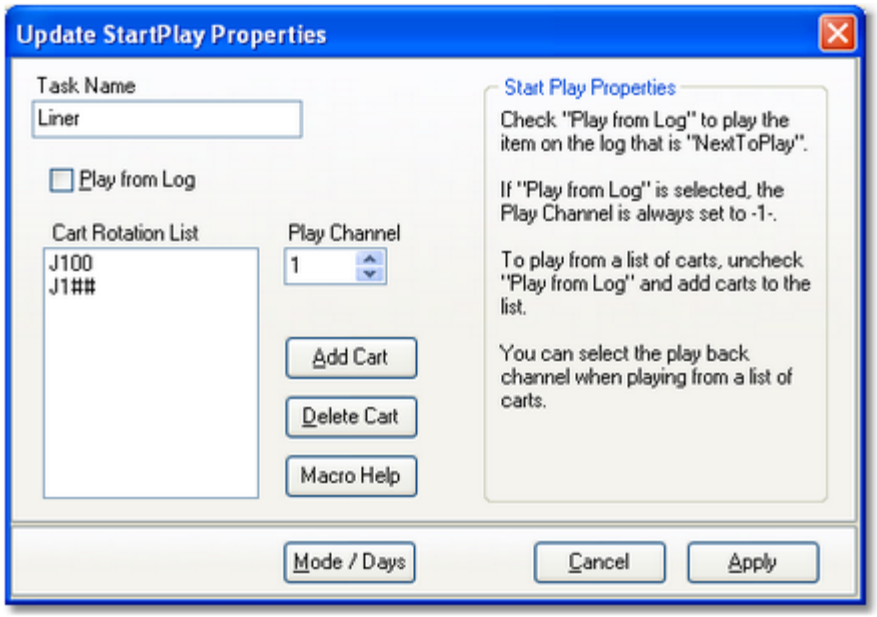
Start Play from the Log

If a Start Play from the log task is used in an action list and the current operating mode is Satellite, do not use a ***Timer*** task to delay the action list execution until the end of the break. In Satellite mode, the length of the break is picked up from the break log directive and passed back to the action list, signaling the action to "wait" the logged break length before continuing on to the next item in the action list.

If the mode of operation is something other than Satellite mode, the action list item following a Start Play task, if any, is executed immediately.

Start Play Using the Cart Rotation List

When playback is to be a specific cart, uncheck the **Play From Log** property, which enables play channel selection and the controls to add and delete cart numbers in the **Cart List**, as shown.


Update StartPlay Properties
Task Name
Liner
Play from Log
Cart Rotation List
J100
J1##
Play Channel
1
Add Cart
Delete Cart
Macro Help
Start Play Properties
Check "Play from Log" to play the item on the log that is "NextToPlay".
If "Play from Log" is selected, the Play Channel is always set to -1-.
To play from a list of carts, uncheck "Play from Log" and add carts to the list.
You can select the play back channel when playing from a list of carts.
Mode / Days
Cancel
Apply

Start Play task for playing carts from a list

Individual cart plays are most often used for satellite programming inserts - liners, jingles, etc. To add cart numbers to the list, click on the [**Add Cart**] button or use the [**Insert**] key. To remove a cart number from the list, select the item and click on the [**Delete Cart**] button or use the [**Delete**] key. You can use cart macro characters in the cart numbers. When a task using the Rotation List is executed for the first time, XStudio adds the task to its Relay Queue Manager, which handles rotating the list of carts. For more information, see the topic Using the XStudio Relay Queue Maintenance Dialog.

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5.8.9.1 Using Cart Macro Characters

To use cart number macro characters, enter the appropriate macro as a part of the cart number.

Supported Cart Number Macro Characters

Macro	***Usage***
##	Current Voice Number (2-character string) Whenever these characters are encountered in a cart number, they are replaced by the current global Voice Number value. ***Note:*** You must always use two characters for defining a voice number and always use the ## (pound sign, pound sign) designation when entering the Current Voice Number macro.
%	Current Day of Week (1=Monday .. 7=Sunday) This character is replaced by the numeric value for the current day of the week.
^	Current Hour (12-hour format) Hours 1 through 9 = 1..9, 10 = A, 11 = B, 12 = C ***Note:*** Because this is a 12-hour format, the current hour value used when substituting for this macro character can occur twice during the day. For instance the 10 AM and 10 PM hours will return the same value - "A".
@	Nearest Hour (12-hour format) If current minute of the hour >= 30, then the returned hour value is incremented by 1. ***Note:*** Because this is a 12-hour format, the current hour value used when substituting for this macro character can occur twice during the day. For instance the 10 AM and 10 PM hours will return the same value - "A".
=	Current Hour (24-hour format) Hours 0 (midnight) through 9 = 0..9, 10 = A, 11 = B, 12 (noon) = C, 13 (1 PM) = D through 23 (11 PM) = N Using this macro character format, there are no duplicates throughout the day.
+	Nearest Hour (24-hour format) If current minute of the hour >= 30, then the returned hour value is incremented by 1. Hours 0 (midnight) through 9 = 0..9, 10 = A, 11 = B, 12 (noon) = C, 13 (1 PM) = D through 23 (11 PM) = N Using this macro character format, there are no duplicates throughout the day.

Day of Week Values

The day of week macro character returns a numeric value, based on the current day of the week.

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Values returned are shown in this table.

Day	Value
Monday	1
Tuesday	2
Wednesday	3
Thursday	4
Friday	5
Saturday	6
Sunday	7

Hour of Day Values

Hour of Day macro characters will return different one-character values, depending on the specific macro character used. The main differences occur between any 12-hour format and any 24-hour format. Values returned by each format type are listed in this table.

Hour of Day	12-Hour Format	24-Hour Format
Midnight	C	0
1 AM	1	1
2 AM	2	2
3 AM	3	3
4 AM	4	4
5 AM	5	5
6 AM	6	6
7 AM	7	7
8 AM	8	8
9 AM	9	9
10 AM	A	A
11 AM	B	B
Noon	C	C
1 PM	1	D
2 PM	2	E
3 PM	3	F
4 PM	4	G
5 PM	5	H
6 PM	6	I

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Hour of Day	*12-Hour Format*	*24-Hour Format*
7 PM	7	J
8 PM	8	K
9 PM	9	L
10 PM	A	M
11 PM	B	N

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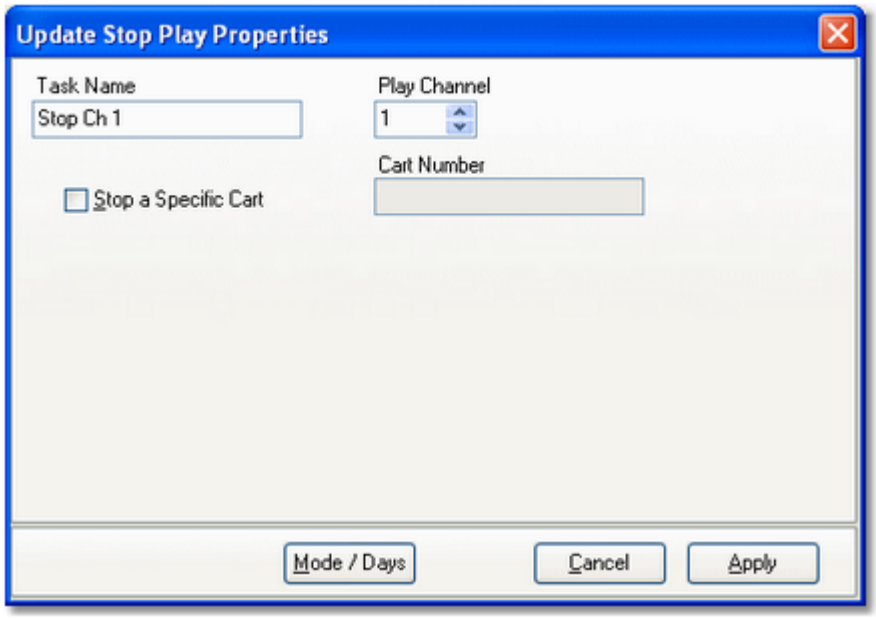
5.8.10 Stop Play Task

The Stop Play task is used to stop playing audio - either audio playing on a specific channel or a specific cart number.



Stop Play Properties

Items with a check mark in the **REQ** column require user entry, while unchecked items have default values which can optionally be changed.

Property	***REQ***	***Description***
Task Name	✓	The user-friendly name of the task. See Common Properties for more information.
Play Channel		The channel on which to stop audio. The default is channel 1. When stopping play on a specific channel, ***all carts playing on the selected channel are stopped***.
Stop a Specific Cart		If checked, the Stop Play task will attempt to stop a specific cart number playing ***on any channel***. If more than one of the specified cart number is playing, only the first one found is stopped.
Cart Number	✓	The cart number to stop if Stop a Specific Cart is checked. This field is disabled unless the Stop a Specific Cart property is checked. The cart number must be 4 characters long.

Stopping Audio on a Specific Channel

To stop audio playing on a specific channel, make sure the Stop a Specific Cart item is unchecked (the default) and select the channel number you wish to stop. The sample task dialog above is an example of using the Stop Play task targeted to a specific channel.

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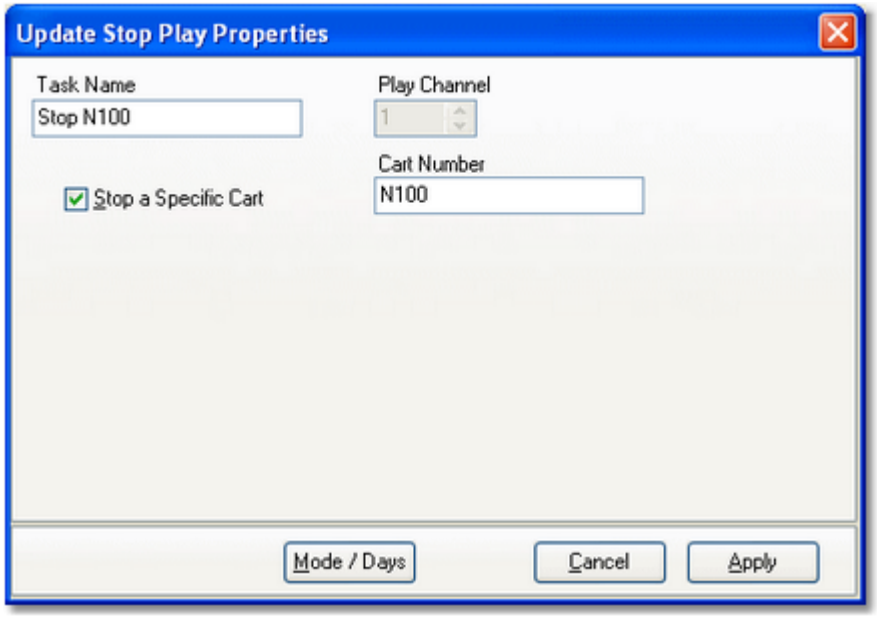
When a specific channel is selected, ***all carts playing on the selected channel are stopped***. The Stop Play task is commonly used when transitioning from local automated programming to satellite programming and, after switching to the satellite program service, it is desirable to stop all carts that might be playing. Since the possibility exists that more than one audio item might be playing in this situation - for instance, audio overlap when finishing one item and starting another - it's desirable to stop all items on the selected playback channel.



Stopping a Specific Cart (Audio File)

To stop play of a specific cart number, check the **Stop a Specific Cart** property and enter the cart number you wish to stop. The cart number must be 4 characters in length.

When stopping a specific cart, an attempt to stop the specified cart number playing ***on any playback channel*** is made. If more than one of the specified cart number is playing, only the first one found is stopped. Should multiple carts of the same number be playing, the first one found and thus stopped would typically be the one that started playing first, regardless of play back channel.

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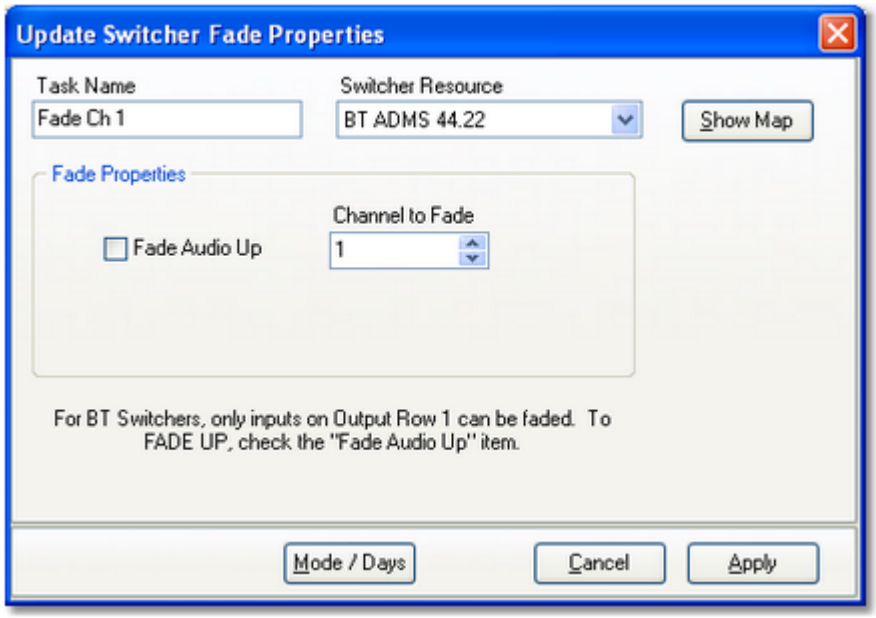
5.8.11 Switcher Fade Task

The Switcher Fade task is used to fade audio on a selected channel, either a fade up or fade down.

> Currently, the only switchers that support this task are the Broadcast Tools ACS 8.2 family of audio switchers and the Broadcast Tools ADMS 44.22. The fade duration is controlled by the switcher's fade settings.



Switcher Fade Properties

Items with a check mark in the **REQ** column require user entry, while unchecked items have default values which can optionally be changed.

Property	***REQ***	***Description***
Task Name	✓	The user-friendly name of the task. See Common Properties for more information.
Switcher Resource	✓	Select the audio switcher that will be used for this task from the dropdown list.

> If the switcher you select does not support input channel fade, you will be advised to select a different switcher. Task information cannot be saved (applied) until a device that supports this task is selected. If you do not have a switcher that supports channel fade, click on the [**Cancel**] button to abort the task.

Fade Audio Up		This property determines the audio fade direction. If checked, audio is faded up; if unchecked the audio is faded down. The default value is unchecked.

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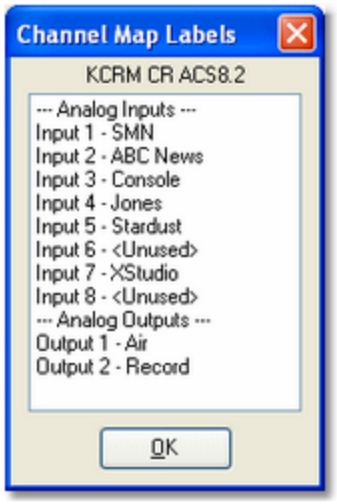
Property	REQ	Description
Channel to Fade		Select the number of the audio channel to fade. Use the [**Show Map**] button to display a list of channel labels for the selected switcher.

Show Map Dialog

The [**Show Map**] button displays the input and output channel labels as they are assigned to the switcher resource. It is used as a reference when selecting a channel to fade.



The channel list can be printed, saved to a file or copied to the Windows clipboard using a pop-up menu that appears when you [**Right-Click**] on the channel list.

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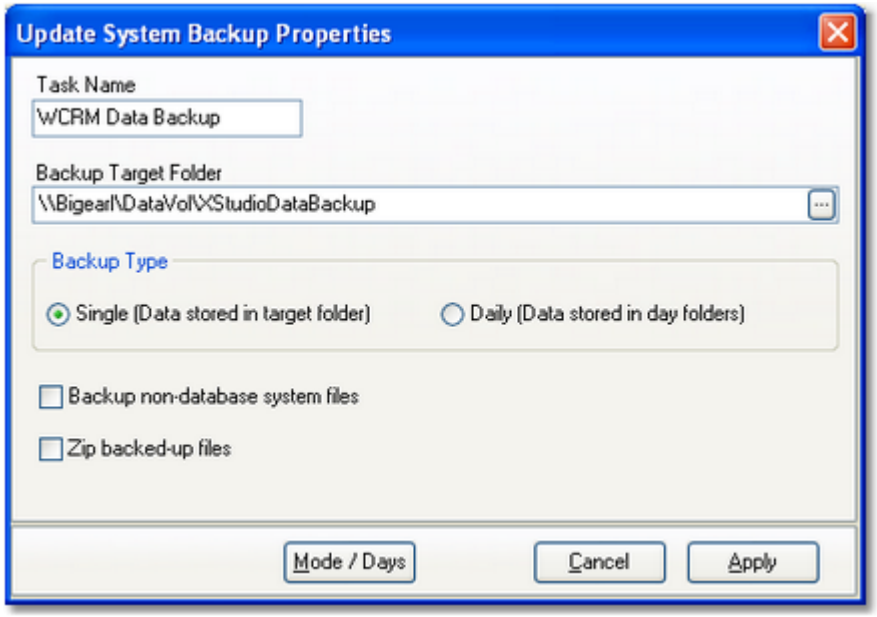
5.8.12 System Backup Task

The System Backup task is used to perform a backup of the XStudio system database files and optionally, other XStudio preference and settings files.

> Audio inventory database files are not backed up with this task. The audio inventory database is automatically maintained and will be rebuilt automatically if needed.

The backed-up files can be used to manually restore database tables, preferences and settings if needed.



System Backup Properties

Items with a check mark in the **REQ** column require user entry, while unchecked items have default values which can optionally be changed.

Property	***REQ***	***Description***
Task Name	✓	The user-friendly name of the task. See Common Properties for more information.
Backup Target Folder	✓	This property controls where backup files are placed. The location can be on the local PC or on another PC in the local area network using a UNC path. If the selected backup type is "Daily", the folder becomes the "base" folder, under which daily folders are created. **The selected base backup folder must exist - it will not be created when running this task**.

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Property	***REQ***	***Description***
		The Backup Target Folder must be set up from the point-of-view (POV) of XStudio and the logged in user must have read and write privileges in the Backup Target Folder. If these conditions are not met, the backup task will fail.
Backup Type		The selected type dictates where backed-up files are located. If the "Single" option is selected, backup files are located directly in the Backup Target Folder. If the "Daily" option is selected, backup files are placed in folders directly under the Backup Target Folder, one for each day of the week. "Daily" option folders are automatically created as needed and are named "01_Monday", "02_Tuesday" and so on through "07_Sunday".
Backup Non-Database System Files		If checked, preference files, settings files and other selected files located in the application folder are backed up. Hot button files located in the XStudio folder are included in the backup. If not checked, only system database files are backed up.
Zip Backed-up Files		If checked, backed-up files are moved to a zip file to reduce disk space consumed by the backup files. The zip file is will be located in the Backup Target Folder specified by this task.

Each time the System Backup task is run, previous backup files in the target folder are replaced. For the "Single" backup type, only one set of backup files exists at any one time.When the "Daily" backup type is selected, as many as seven (7) sets of backup files are retained, one for each day of the week. As noted earlier in the properties description, daily backup types are stored in individual day folders located under the Backup Target Folder.

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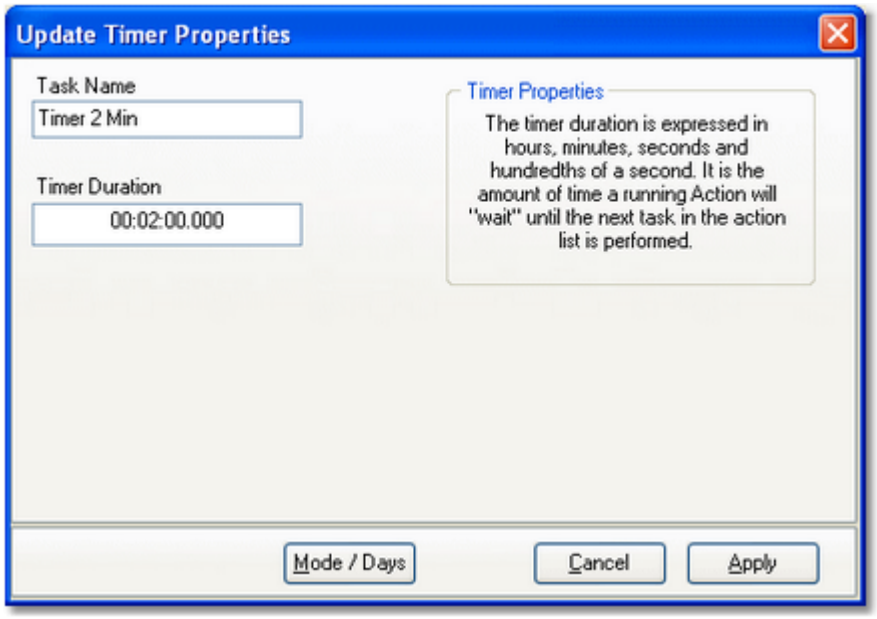
5.8.13 Timer Task

The Timer task is essentially a "delay" or "wait" command. When a timer task is executed in a running Action, the Action "waits" for the timer duration before moving on to the next task in the action list.

> If a ***Start Play*** from the log task is used in an action list ***and*** the current operating mode is ***Satellite***, do not use a Timer task to delay the action list execution until the end of the break. In Satellite mode, the length of the break is picked up from the break log directive and passed back to the action list, signaling the action to "wait" the logged break length before continuing on to the next item in the action list.
>
> If the mode of operation is something other than Satellite mode, the action list item following a Start Play task, if any, is executed immediately.

Timer tasks have a resolution of 1/100th of a second. The maximum length allowed for a timer task is 23:59:59.990 - 23 hours, 59 minutes, 59 seconds, 990 milliseconds (99 centiseconds).


Update Timer Properties
Task Name
Timer 2 Min
Timer Duration
00:02:00.000
Timer Properties
The timer duration is expressed in hours, minutes, seconds and hundredths of a second. It is the amount of time a running Action will "wait" until the next task in the action list is performed.
Mode / Days
Cancel
Apply

Example 2-minute Timer task

Timer Properties

Items with a check mark in the **REQ** column require user entry, while unchecked items have default values which can optionally be changed.

Property	***REQ***	***Description***
Task Name	✓	The user-friendly name of the task. See Common Properties for more information.
Timer Duration	✓	The time to "wait" before an Action moves on to the next task in its list. Time entry is in hours, minutes, seconds and hundredths of a second. Internally, the timer duration is stored as milliseconds and during data entry, the last digit (a zero) is automatically filled in.

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Property	REQ	Description
		Maximum timer length is 23:59:59:990.

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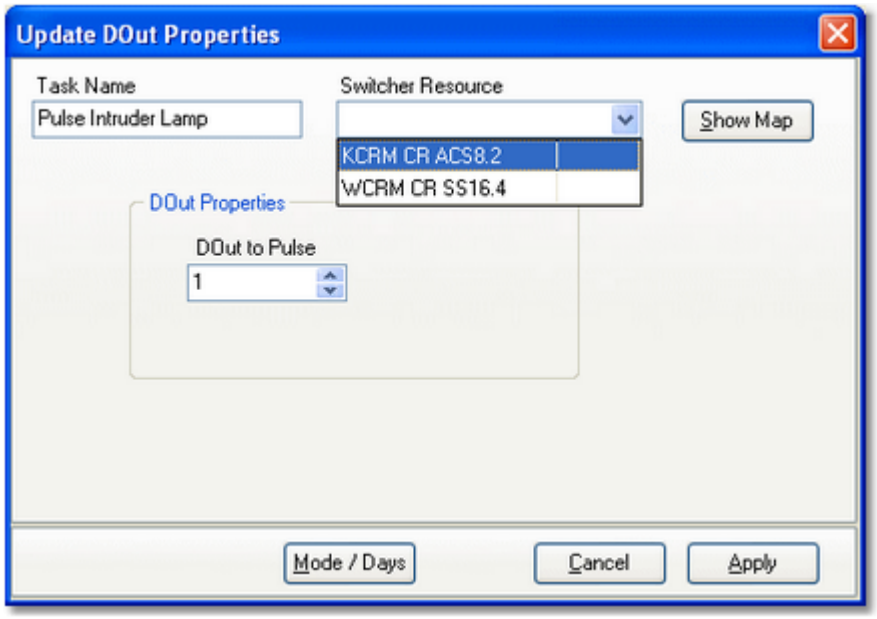
5.8.14 Update DOut Task

The Update DOut task is used to send an outbound relay pulse from an audio switcher that supports this functionality. The relay pulse might be used to turn on a light or start some other device.

> Some audio switchers support additional outbound relay functionality, including toggling the relay on (closed) and holding it on (closed). This task supports ***pulse output*** only. The duration of the pulse is controlled by the audio switcher settings. Pulse duration is typically one second or less, with most switchers supporting a range from ~100 milliseconds up to ~9.9 seconds



Selecting the switcher resource for a DOut

Update DOut Properties

Items with a check mark in the **REQ** column require user entry, while unchecked items have default values which can optionally be changed.

Property	***REQ***	***Description***
Task Name	✓	The user-friendly name of the task. See Common Properties for more information.
Switcher Resource	✓	Select the audio switcher that will be used for this task from the dropdown list.

> If the switcher you select does not support DOut's, you will be advised to select a different switcher. Task information cannot be saved (applied) until a device that supports this task is selected. If you do not have a switcher that supports DOut's, click on the [**Cancel**] button to abort the task.

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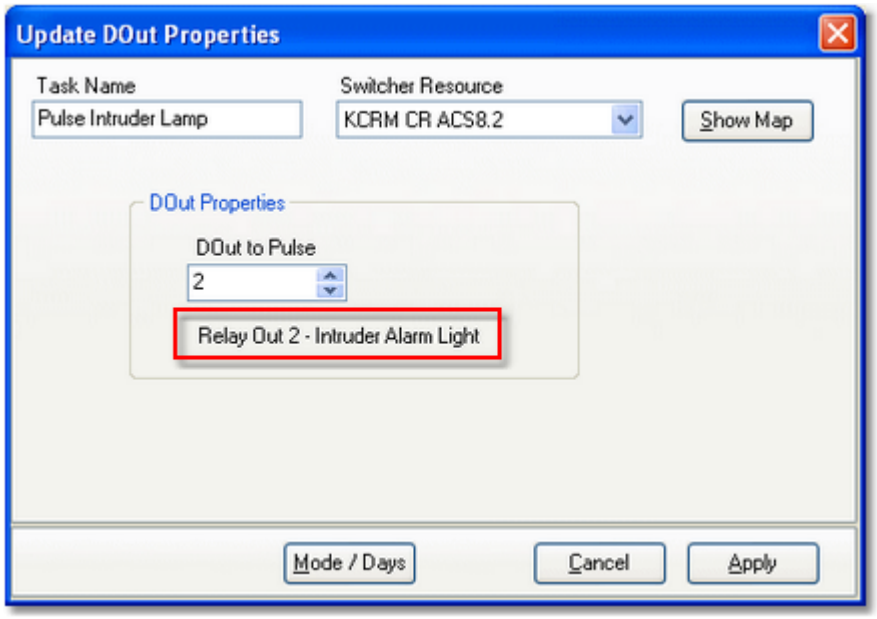
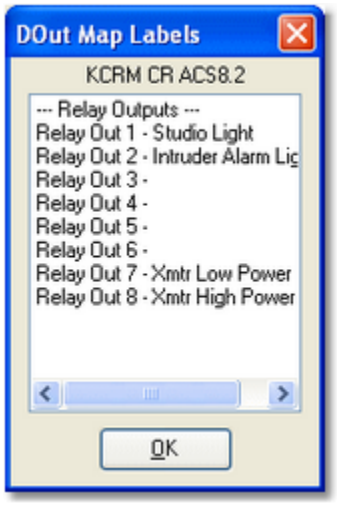
Property	REQ	Description
DOut to Pulse		This property sets the specific DOut to pulse. As the value is changed, the selected DOut description is displayed, as shown in the example.



Show Map Dialog

The [**Show Map**] button displays the DOut identification labels as they are assigned to the switcher resource. It is used as a reference when selecting a DOut to pulse.


DOut Map Labels
KCRM CR ACS8.2
--- Relay Outputs ---
Relay Out 1 - Studio Light
Relay Out 2 - Intruder Alarm Lig
Relay Out 3 -
Relay Out 4 -
Relay Out 5 -
Relay Out 6 -
Relay Out 7 - Xmtr Low Power
Relay Out 8 - Xmtr High Power
OK

The DOut label list can be printed, saved to a file or copied to the Windows clipboard using a pop-up menu that appears when you [**Right-Click**] on the displayed list.

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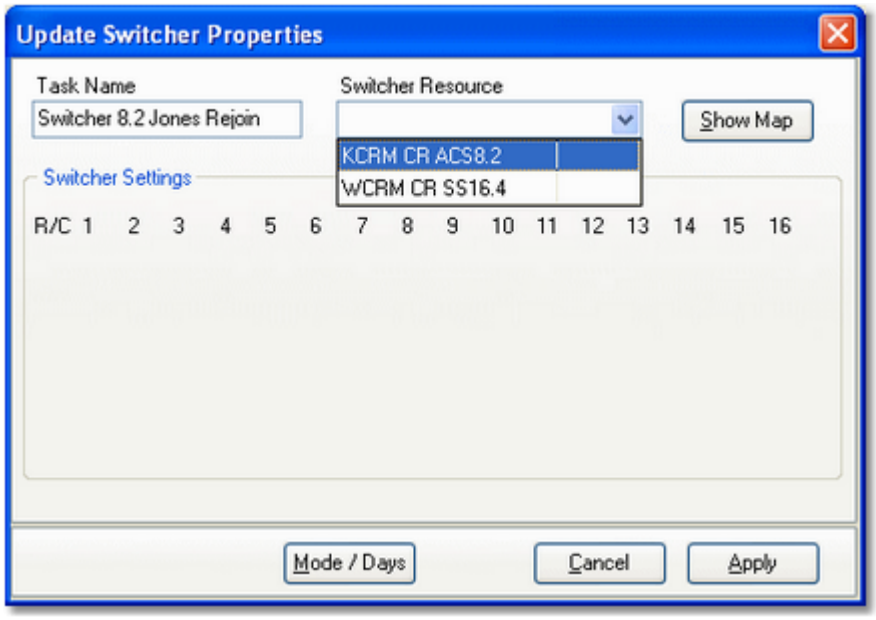
5.8.15 Update Switcher Task

The Update Switcher task is used to set channel states on an audio switcher. Channels can be explicitly turned on and off or left alone in their current state. You must set at least one channel on or off for the task to be valid. Changes cannot be saved until at least one channel is turned on or off.



Update Switcher - selecting the audio switcher

Update Switcher Properties

Items with a check mark in the **REQ** column require user entry, while unchecked items have default values which can optionally be changed.

Property	***REQ***	***Description***
Task Name	✓	The user-friendly name of the task. See Common Properties for more information.
Switcher Resource	✓	Select the audio switcher that will be used for this task from the dropdown list. When selected, the appropriate number of channels and rows of channels is updated in the switcher settings panel.
Switcher Settings	✓	Set individual channels off, on, or "no change". ***At least one channel must be set on or off for the task to be valid***. Displayed channel buttons can have one of three states, which are shown above. In order of display, the states are channel off, channel on, and do not set channel state, which means no change to existing settings for this channel when the task is executed. Entire rows can be toggled on or off and the row state cleared to no change using a pop-up menu (shown below). Float your mouse over the row you wish to change and [**Right-Click**] to display the menu.

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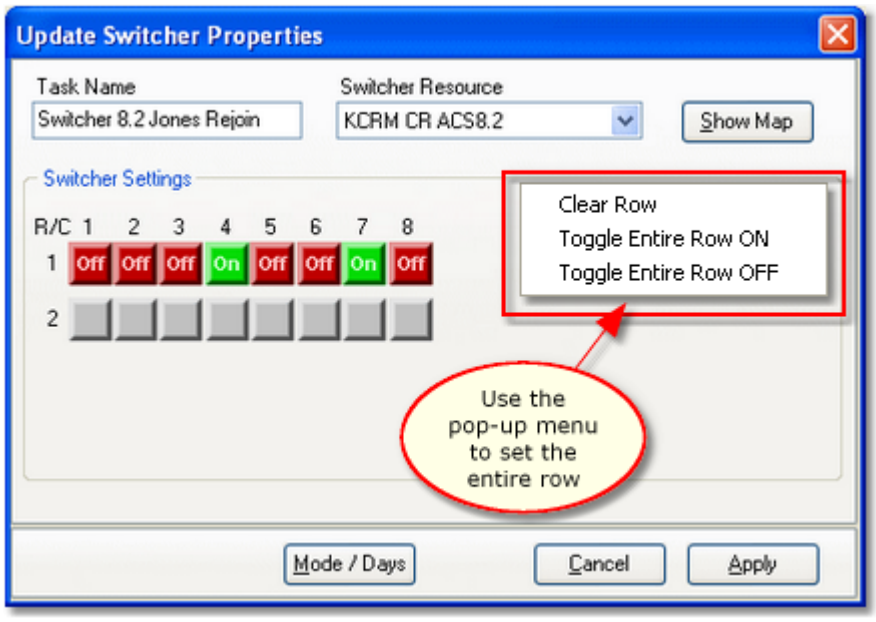
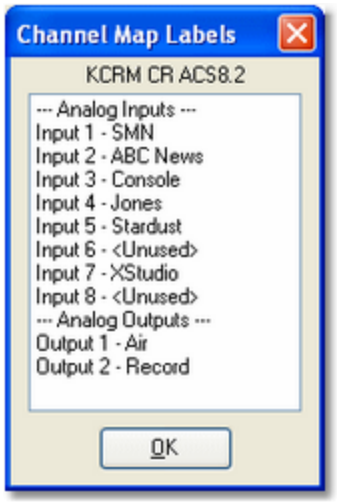


Update Switcher task - change entire row pop-up menu displayed

Show Map Dialog

The [**Show Map**] button displays the input and output channel labels as they are assigned to the switcher resource. It is used as a reference when setting a channel's state.



The channel list can be printed, saved to a file or copied to the Windows clipboard using a pop-up menu that appears when you [**Right-Click**] on the channel list.

Example 16x4 Switcher Dialog

This dialog demonstrates the appearance of the Update Switcher dialog when a 16x4 (16 input channels, 4 output rows) switcher is being updated.

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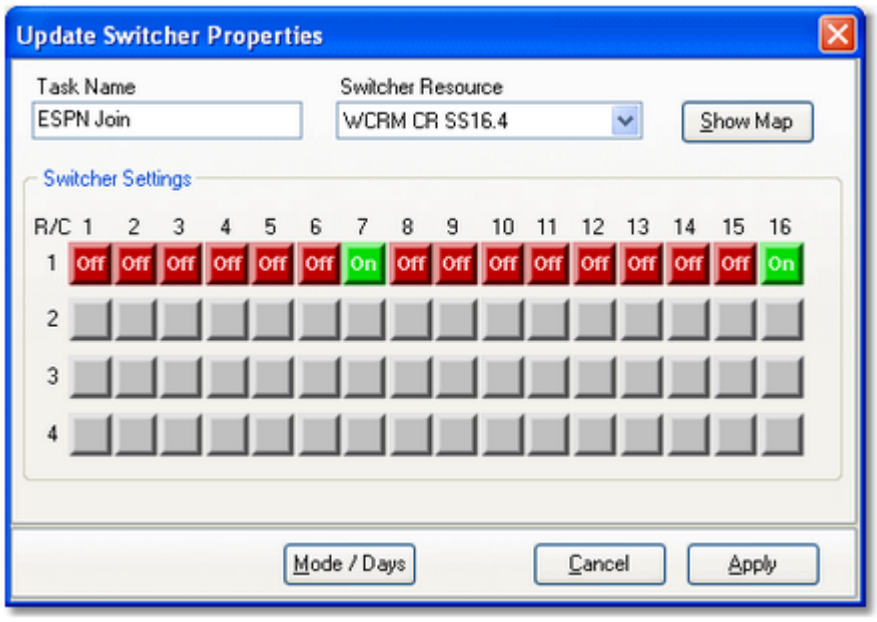

Example 16x4 Update Switcher Dialog

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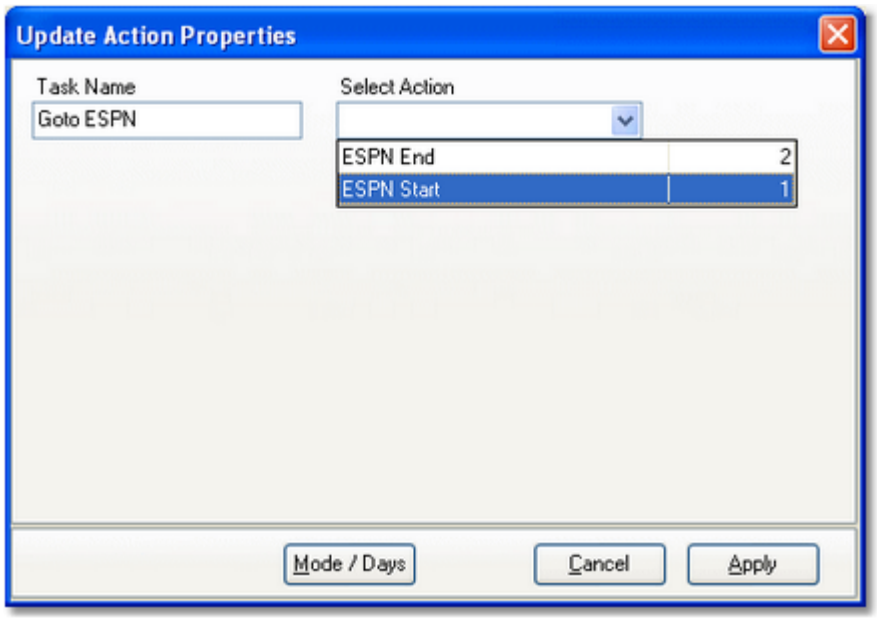
5.8.16 Use Existing Action Task

The Use Existing Action task is used to "nest" an Action within a running Action's task list. As this task is about to be executed in an action task list, it is checked like any other task to see if it is valid for the current mode of operation, day of week and time of day. If this criteria is not met, the ***entire action*** referenced by this task is skipped.



Selecting an Action for the Use Existing Action task

Use Existing Action Properties

Items with a check mark in the **REQ** column require user entry, while unchecked items have default values which can optionally be changed.

Property	***REQ***	***Description***
Task Name	✓	The user-friendly name of the task. See Common Properties for more information.
Selected Action	✓	Select the Action that will be performed when this task is executed and all execution criteria for the task are met. See the section on Advanced Task Properties, which explains how you can control whether or not the action begins execution.

Once this task has been validated as OK to execute at run-time, each task within the selected action is validated as well, as a normal task would be. It is possible, then, that while an action launched with this task executes, not all of its own member tasks would execute.

Use Existing Action Task Flow

When this task is executed at run-time, the assigned action's task list is executed only if this task's Advanced Properties permit. If this task fails validation, the entire action is skipped.

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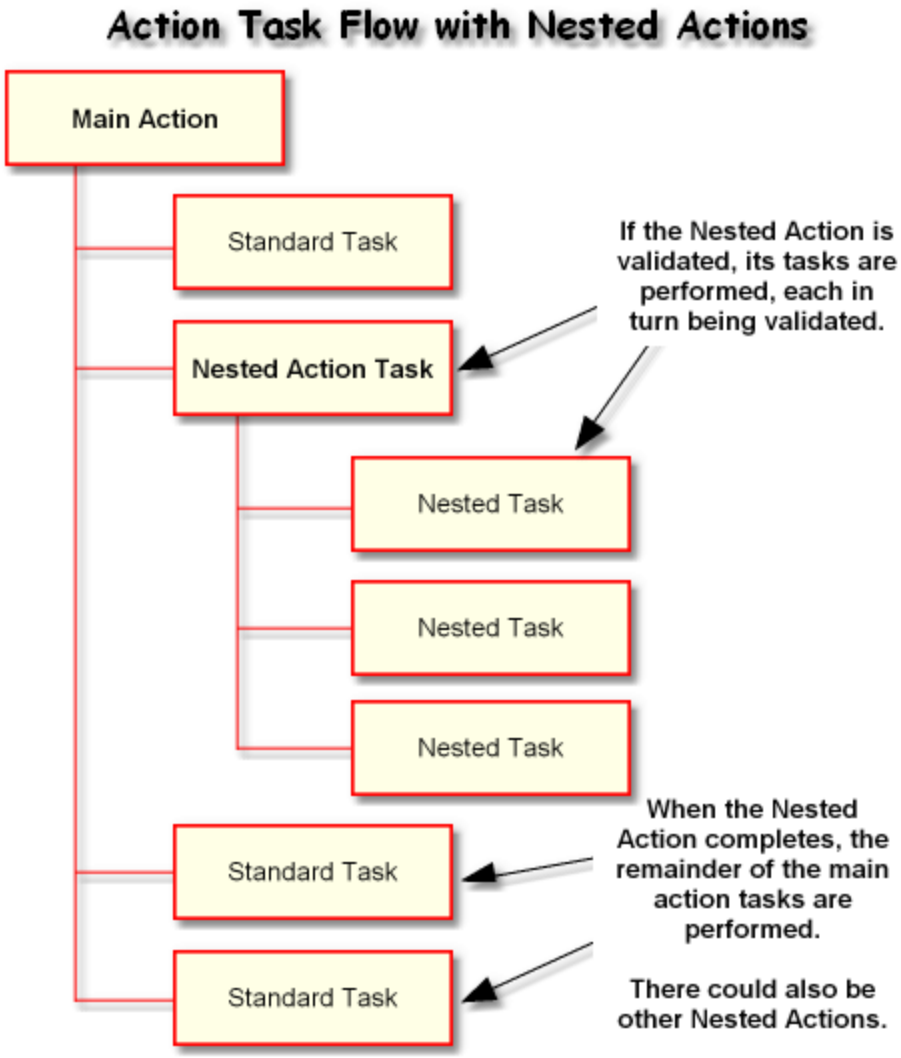
If this task passes validation, then the assigned action's list of tasks is performed, in order, subject to each individual member task being validated. When the assigned action's task list has been completed, any other tasks contained in the master action list following this task are validated and performed. The flow diagram shown displays graphically the order of execution.


Action Task Flow with Nested Actions
Main Action
Standard Task
Nested Action Task
If the Nested Action is validated, its tasks are performed, each in turn being validated.
Nested Task
Nested Task
Nested Task
Standard Task
When the Nested Action completes, the remainder of the main action tasks are performed.
Standard Task
There could also be other Nested Actions.

As you might deduce by looking at the diagram, it is possible to further "nest" actions by placing a Use Existing Action tasks in an Action already being used as a nested action. In fact, you could go several layers deep, although perhaps with some level of confusion when the nesting gets more than 3 or 4 layers deep.

More commonly, you might use several Use Existing Action tasks in a master Action, with each nested action's execution being controlled by the Advanced Properties settings for the task - in other words, maybe only one of 5 nested actions would actually be performed when the master action executes.

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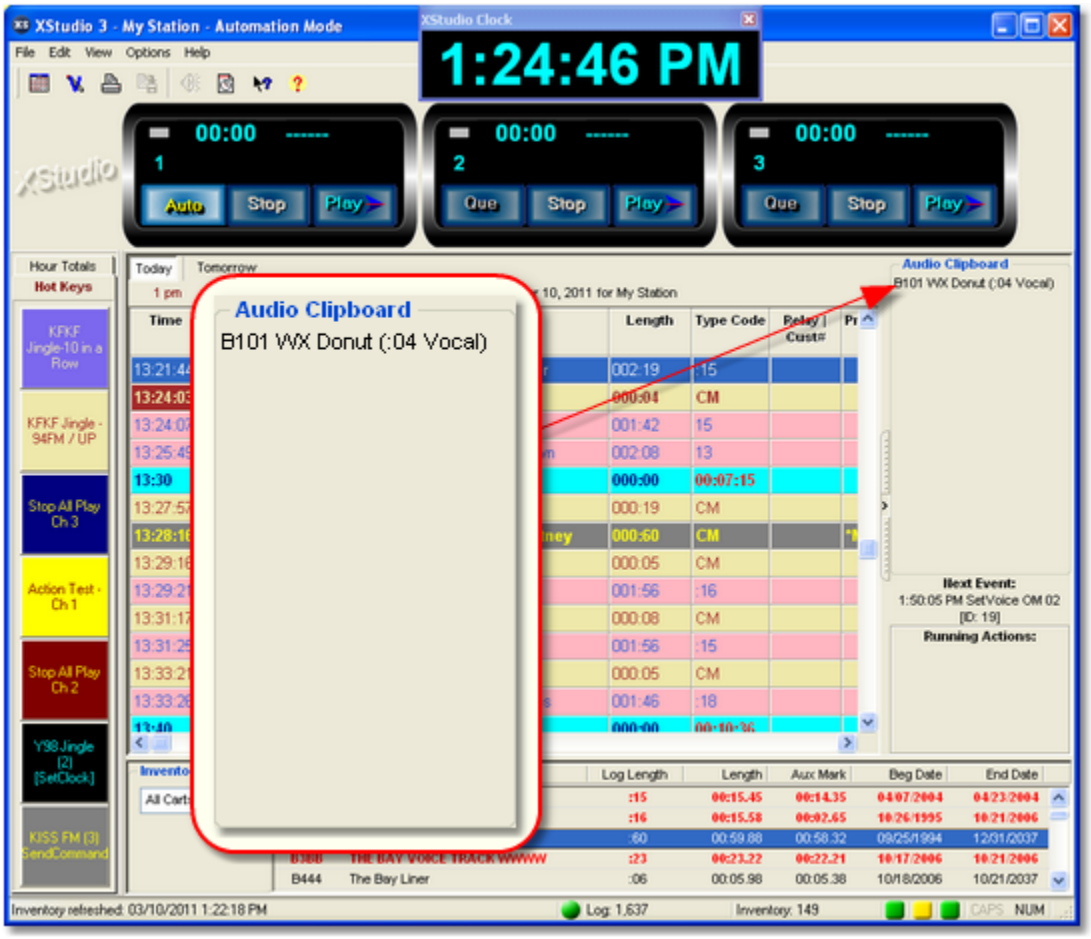
5.9 Using the Audio Clipboard

The XStudio audio clipboard is located immediately below the main display playback decks and to the right of the log. The clipboard is used to create a list of carts for ad hoc playback on decks 2, 3 and 4.



XStudio Audio Clipboard

You can place items in the clipboard from the log or from the audio inventory list. The order of items in the audio clipboard can be controlled by dragging the items up or down in the list. The width of the clipboard is controlled using the splitter control that separates the log and audio clipboard. The audio clipboard can also be completely hidden (collapsed) if desired.

Adding Carts to the Clipboard

Audio items (carts) can be added to the clipboard from either the audio inventory list, the log or the music search dialog. Select an item and press and hold down the [**Left**] mouse button. Drag the item to the clipboard and drop it. The item is added to the clipboard list at the point it was dropped.

In addition to drag-and-drop, you can add items to the clipboard from the inventory list by selecting an item and pressing the [**Ctrl-A**] keyboard shortcut or with the inventory pop-up menu.

Playing Carts from the Clipboard

There are a number of ways to play carts (audio items) from the clipboard. You can use the deck 2, 3

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& 4 [**Play**] buttons, deck 2, 3 & 4 (if enabled) remote starts, deck 2, 3 & 4 keyboard remote start shortcuts, and by dragging a clipboard item onto any playback deck and dropping it.

When you use a [**Play**] button or remote start method, the top item in the clipboard is played on the selected playback deck and the clipboard item is removed.

> To play items from the clipboard, the playback deck source must be set to the clipboard ([**Que**]). For more information, see the topic on using playback decks 2,3 & 4.

You can play any item in the clipboard on any deck by selecting the item, dragging it to a playback deck and dropping it. The item will be played immediately and removed from the audio clipboard.

Arranging Carts in the Clipboard

To reorder items in the audio clipboard, select an item, press and hold the [**Left**] mouse button, and drag the item to its new location in the list.

Removing Carts from the Clipboard

To remove a cart from the audio clipboard, select the item and press the [**Del**] (delete) key. The selected item is removed without confirmation.

Hiding the Clipboard

The audio clipboard can be hidden, if desired. The section of the main display that contains the clipboard has an adjacent splitter control that allows you to resize the clipboard width and entirely hide or show the section.

Audio Clipboard Splitter

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To toggle the visibility of the audio clipboard, click on the splitter control. If the clipboard is visible, it will be hidden. If hidden, the clipboard will become visible.

To change the width of the clipboard display, press and hold the [**Left**] mouse button on the splitter control, then move the mouse left or right to increase or decrease the width.

If you adjust the width of the audio clipboard or collapse it completely to hide it, the changes also affect the Next Event and Running Actions display panels.

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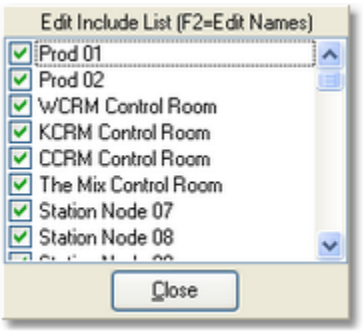
5.10 Using the Cart Distribution/Include List Panel

Audio files used by XStudio contain a distribution list that historically has been used to determine whether or not a given audio work station is permitted to use the file in DCS and Maestro systems. While XStudio does not enforce this restriction during playback of audio, the distribution list can be used to control whether or not carts (audio files) are displayed in inventory lists and/or included in any inventory lists that XStudio creates and makes available for other applications to use.

The cart distribution list is displayed when you wish to change these settings in Preferences on the Audio Properties page.



Distribution/Include List Edit Panel

Usage is simple - checked "nodes" or "stations" are included, unchecked nodes are not.

Customizing Work Station Names

To make it easier to identify audio work stations in a station's broadcast facility, the text for each work station name in the list can be edited. [**Double-Click**] on the item in the list whose name you wish to edit. A dialog appears, allowing you to make changes. When you're finished editing the name, click on the dialog's [**OK**] button to save the changes.

> **Hint** Work stations in the list are sorted in node number order. The 1st name in the list corresponds to node number 1 (or zero – 0 – under the covers in DCS and Maestro).

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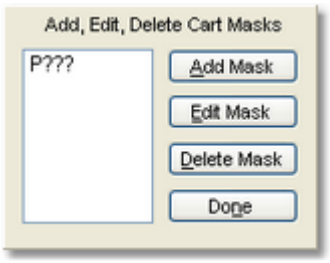
5.11 Using the Cart Mask Edit Panel

Some portions of XStudio require the entry of cart masks for one purpose or another. When cart masks need to be added, edited or deleted, the Cart Mask Edit Panel is displayed.



The panel is intended to make the tasks associated with cart mask maintenance easier and more foolproof with buttons for adding, editing and deleting cart masks.

Add Mask Button

When the Add Mask button is clicked, a dialog appears for entry of the new cart mask. The entered mask is validated to ensure it meets cart mask rules before being accepted and added to the cart mask list.

Edit Mask Button

To edit a cart mask in the list, select the item to be edited and click on the Edit Mask button. The mask text appears in a dialog for editing. The revisions are validated to ensure the changes meet cart mask rules before being accepted.

Delete Mask Button

To delete a cart mask in the list, select the item to be deleted and click on the Delete Mask button. The selected cart mask is immediately removed from the list.

Close Cart Mask Edit Panel Button

Click when finished editing cart masks to close the panel and update the cart mask field contents.

5.11.1 Cart Masks Explained

Cart masks are used to identify carts (audio files) that might be grouped together. A cart mask must be exactly 4 (four) characters in length. Mask entry dialogs will not allow entries that are too short and will not accept more than 4 characters entered.

The "**?**" (question mark) or the "*****" (asterisk) characters are "wildcards", meaning a letter or number is valid in its position in the mask. The "**?**" and "*****" characters can be used interchangeably as they have the same meaning in cart mask evaluation. A third wildcard that can be used is the "**#**" (pound sign) character. When used in a cart mask, only numbers (0 through 9) are valid in its position in the mask. These are the only wildcard characters allowed for a cart mask - all other characters will be interpreted literally.

Valid characters for a cart mask, besides the "**?**" (question mark), "*****" (asterisk) and "**#**" (pound sign) include the letters **A .. Z**, the numbers **0 .. 9** and the characters "**{**", "**}**" and "**!**" (exclamation).

A valid cart mask will include one or more "**?**", "*****", or "**#**" characters (although it doesn't have to) and

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other letters or numbers that match up with cart types that you wish to have grouped together. Examples of valid cart mask include:

Mask	Result
C???	Carts beginning with the letter "C" and any 2nd, 3rd and 4th character will be included.
PR??	Carts with the first two characters of "PR" and any 3rd and 4th character will be included.
?R??	Carts with any first character, a second character of "R" and any 3rd and 4th characters will be included.
Z?A?	Carts with a first character of "Z", any 2nd character, a third character of "A" and any 4th character will be included.
VT##	Carts with the first two characters of "VT" and a number in the 3rd and 4th characters will be included.
C***	Carts beginning with the letter "C" and any 2nd, 3rd and 4th character will be included.
C??#	Carts beginning with the letter "C", containing any character in the 2nd and 3rd positions, and a number (0 through 9) in the 4th position will be included.
####	Only carts with a number (0 through 9) in each character position will be included.

A cart mask of "**????**" or "********" (or any combination of the two wild card characters) is the same as saying "***any cart number is valid***", which means all carts would match such a mask.

Combining a number of cart masks for use in a cart category will group all carts that meet at least one of the cart masks. For instance, you could have a filter called "**R** Carts" that has 4 cart masks - "**R???**", "**?R??**", "**??R?**" and "**???R**". The result of using this cart filter would be that every cart in the inventory that has the letter "**R**" in any character position (1st, 2nd, 3rd or 4th) would be a match.

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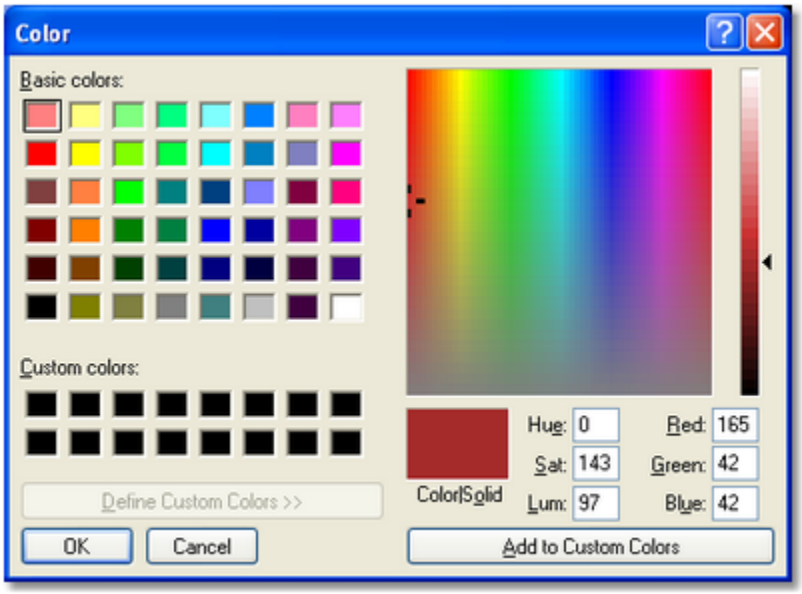
5.12 Using the Color Customization Dialog

The Color Customization Dialog is a standard Windows dialog for selecting and/or creating colors, similar to the example shown.



Color Customization Dialog (expanded)

All of the standard methods for creating custom colors are available in this dialog. You can visually create a color by clicking on the color spectrum display, then moving the gradient marker, or you can manually enter a color value as a set of numbers, either based on the RGB values or Hue, Saturation, and Luminescence values.

If you find that you are consistently using a particular custom color, you may wish to write down the RGB values for that color to make it easier the next time you want to duplicate it. You can also add a newly created color to the "custom colors" panel, but remember these settings are not persistent between sessions - if you exit the software, the custom color is not saved.

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5.13 Using a Remote Database

As a default, XStudio creates and maintains a local database with complete control over it. No other applications are allowed access to the data or to the files that comprise the database unless you explicitly allow remote access to the local database for remote administration of the automation data using XStudio Admin.

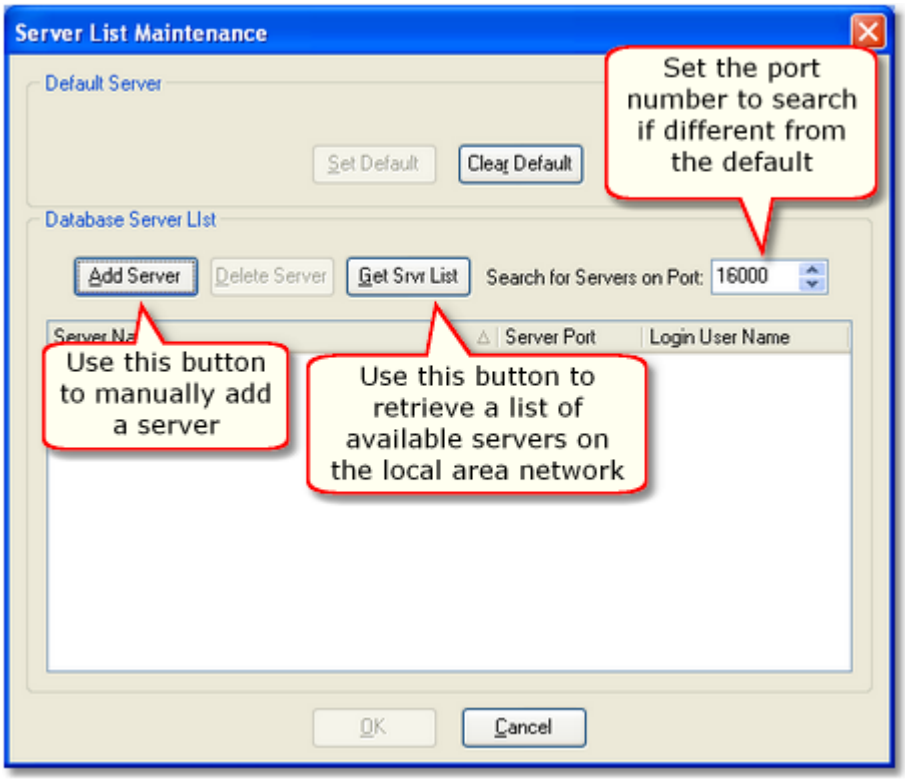
A second option available is to use a centralized, remote database server typically located on another PC. This option requires a stand-alone database server application be installed, configured and available to XStudio.

> The necessary stand-alone database server software for implementing a centralized database is not included in the XStudio installation package. If you wish to use a centralized database, contact your vendor for information on obtaining the database server software, along with its requirements for use.

5.13.1 Database Server List Maintenance

If you will be connecting XStudio to a remote database - one that is not the local database XStudio creates and maintains as a default - you can use the database server list maintenance dialog to locate the server (if physically on your LAN) or create a manual entry for the server.

When initially opened with no defined remote database servers, the server list maintenance display will look similar to the example shown.



Default Server List Maintenance Dialog with no Defined Servers

There are two ways to define servers - retrieve a list of available servers from you local area network, and manually add a server that either does not appear on the local area network or is at a remote

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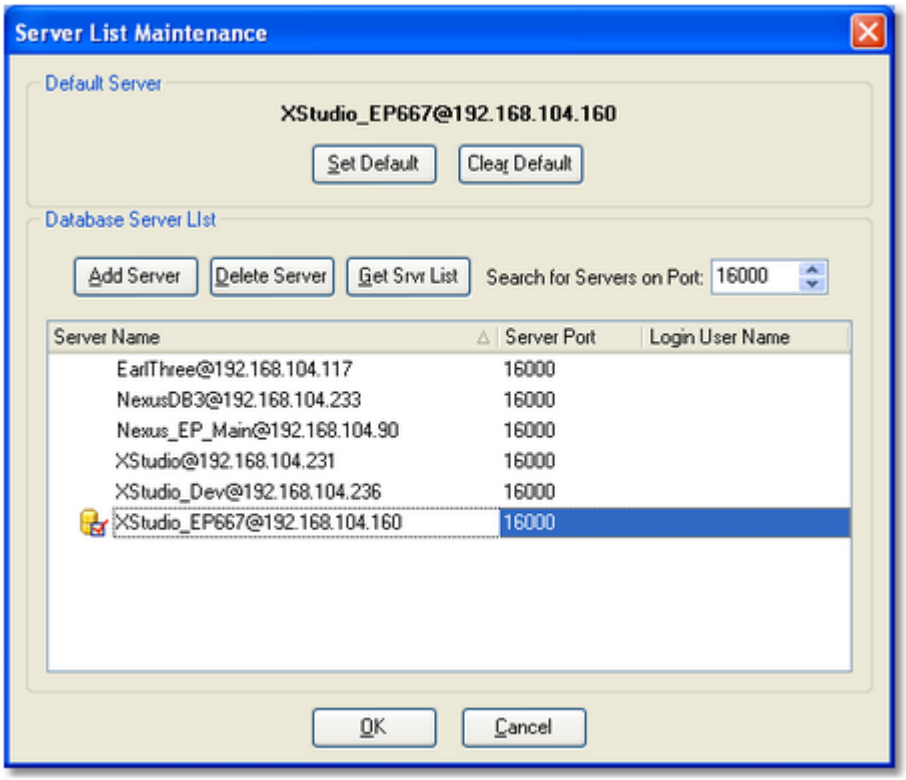
location.

Retrieve Servers Available on the Local Area Network

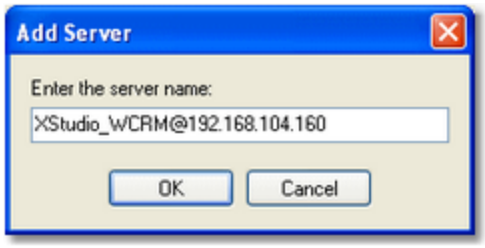
If the database servers you will be maintaining are on your local area network, use the [**Get Srvr List**] button, which broadcasts a message asking for available servers to respond. In order for the broadcast messaging to work, certain TCP/IP ports must be available for use and not blocked by a firewall. After broadcasting a message across your local area network and waiting a few moments for responses from active database servers, all found servers are added to the database server list.



In the example display shown, one of the servers has also been designated the "**Default Server**." This means that when XStudio is launched, the selected server is the one that XStudio will initially log in to and use if you have the Use Remote Database property enabled.

Manually Add Servers to the Server List

If a local database server cannot be found or if you need to connect to a database server outside your local area network, you can manually add the server using the [**Add Server**] button, which displays a dialog for entering the server name.



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Enter in the server name and click the [**OK**] button to add it to the server list. The correct entry format for manually adding a server is in the format "**Name@Address**", where the "Name" portion is whatever the name assigned by the host application is, the "Address" portion is the IP address or resolvable network path, and the "**@**" symbol separates the two.

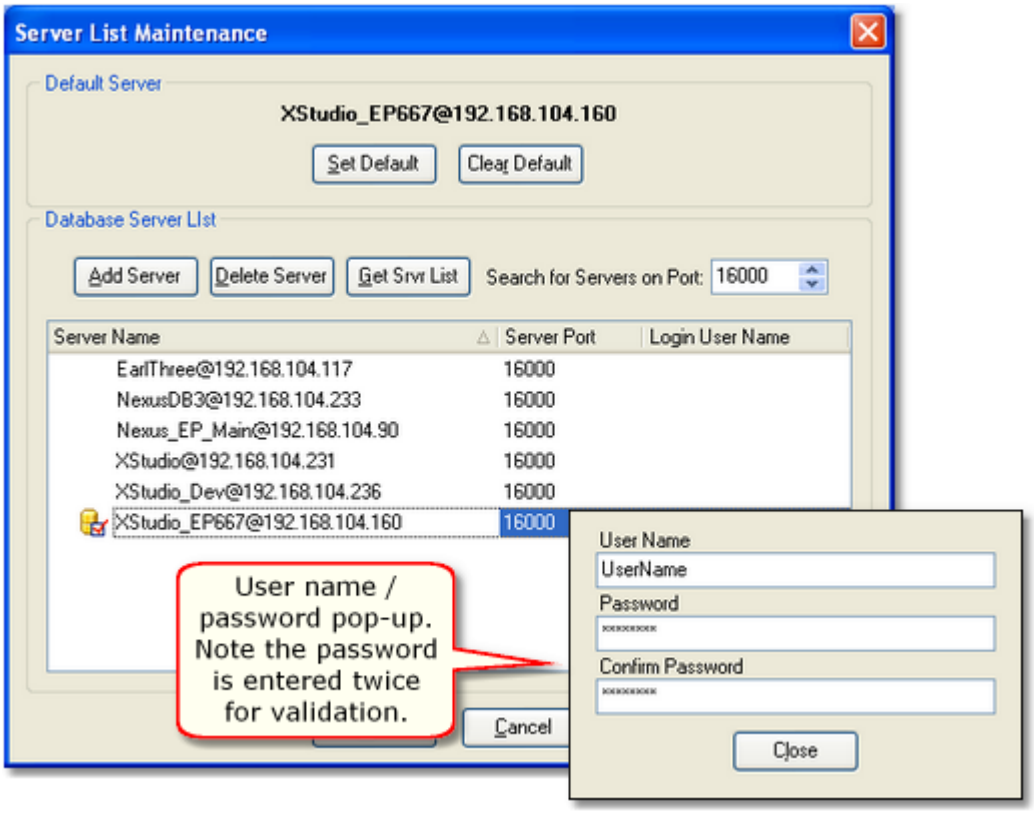
Example Server Name Entries

Server names can be entered in any of these formats:

Entry Syntax	***Description***
`XStudio_KCRM@192.168.110.120`	Standard IP address notation.
`XStudio_KCRM@KCRM_ControlRoom`	Machine Name notation - local area network only!
`XStudio_KCRM@KCRM.dns2go.com`	Internet domain name notation.

User Name and Password

As a default, the XStudio database does not require a user name and password to gain access. However, should the remote database server require a valid user name and password, you can enter the information in the **Login User Name** field. When you select this field, a dialog appears.



Enter the required user name and password - note the password is entered twice for validation. If the password entries do not match, you will be prompted to reenter them.

When the server list is saved, the user name and password are included. Future logins to the selected

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database server will have the user name and password entered automatically for you, avoiding a prompt to manually enter them.

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5.13.2 TCP/IP Port Information

In order for XStudio to communicate with a remote database server, certain TCP/IP ports must be available for use and not blocked by a firewall. ***This applies to both the XStudio PC and the PC running the database server application***. If you launch XStudio and see a Windows message similar to the following, you either need to tell Windows to unblock the port or manually unblock the port.

Windows Security Alert
To help protect your computer, Windows Firewall has blocked some features of this program.
Do you want to keep blocking this program?
Name: XStudioAdmin
Publisher: C-R Media
Keep Blocking
Unblock
Ask Me Later
Windows Firewall has blocked this program from accepting connections from the Internet or a network. If you recognize the program or trust the publisher, you can unblock it. When should I unblock a program?

Database Communication Ports

Only one TCP port is used for database communications and is the only required port. The default port number is: **16000**.

If you are accessing a remote database server somewhere outside of your local area network (LAN), this is the only port that needs to be available and unblocked. Ports referred to in the section on broadcast ports are only useful on a local area network.

Broadcast Ports

The automatic retrieval of remote database server names is dependent on being able to broadcast a request for available servers to respond, and being able to receive their responses.

Broadcasts use as a default UDP ports **16000** (for requests) and **16001** (for responses). If you want to be able to retrieve a list of available remote database servers automatically, both of these ports need to be available and unblocked.

Default Port Usage Table

Use this table as a reference if manually configuring port blocking exceptions.

Port Type	***Port Number***	***Usage***
TCP	16000	Database communications. This is the only required port.
UDP	16000	Used to broadcast requests for available database servers. Useful only on the local area network.
UDP	16001	Used to receive broadcast replies from available database

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Port Type	Port Number	Usage
		servers. Useful only on the local area network.

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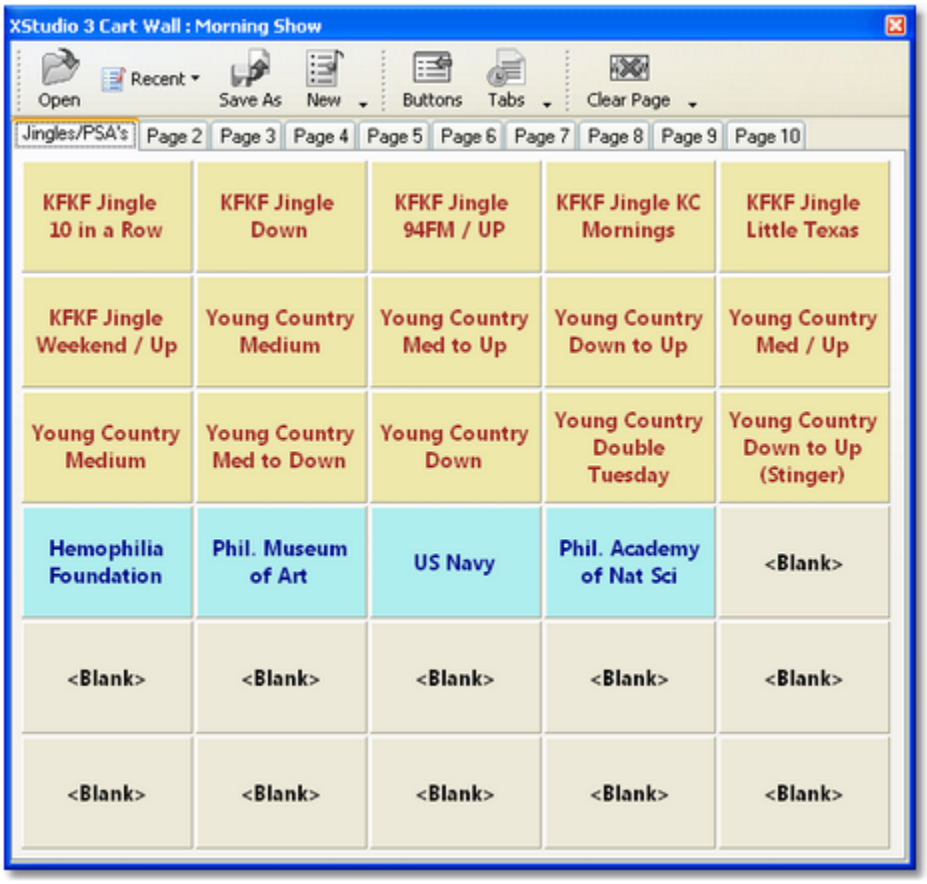
5.14 Using the XStudio Cart Wall

The XStudio Cart Wall displays 300 programmable hot buttons in 10 pages (tabs), each containing 30 buttons, in a pop-up window that can be positioned and sized as desired. Buttons can be programmed to play audio, execute an XStudio Action or if connected to a host Maestro or DCS system, execute a host-system-defined function.



XStudio Cart Wall

Cart Wall Features

The XStudio Cart Wall has been designed to be as flexible and easy-to-use as possible. Key features include:

- Drag and drop button configuration. Drag audio items from the log or inventory and drop on a button.
- User-controlled size and position. The Cart Wall window can be sized as large as desired and can be placed on a second monitor (if available). Position and size settings are restored the next time XStudio is launched.
- User-defined page (tab) labels, font size and bold text attribute.
- User-defined button font, font size and bold text attribute.
- User-defined default playback deck.

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- Automatic button color scheme for playback buttons. Drag an item from the XStudio log or inventory list and if the cart number falls within any of the defined Cart Categories, the category colors are automatically applied to the button.
- The Hot Button Configuration dialog allows user to apply last-used color combinations or a user-defined default color combination.
- A Clear Page button that allows users to clear (reset) an entire page of buttons with a single mouse click.
- Unlimited "sets" of buttons. Users can create as many named sets of 300 buttons as desired, each set with its own button page labels, button font type, font size, bold text attribute and default playback deck.

For additional information on configuring buttons, see the information on configuring a hot button.

5.14.1 Controlling the Cart Wall Size & Position

When the XStudio Cart Wall is initially displayed, it is positioned over the upper-right portion of the main display and is sized to a minimum length and width.

To Change Cart Wall Size

You can resize the dialog by floating the mouse cursor over any border or corner of the dialog so the cursor shape changes to the standard sizer type. Then [**Left-Click**] and hold the button down. Drag the side or corner you've attached to until the dialog size meets your needs. Buttons will automatically resize when you release the mouse button.

To Move Cart Wall Dialog

To move the Cart Wall dialog, [**Left-Click**] on the title bar of the window and hold the button down. Drag the window to the location of your choosing. If more than one monitor is available, you can drag the dialog to another monitor.

The XStudio Cart Wall current size, position and monitor number are stored when the application is closed and restored the next time XStudio is launched.

5.14.2 Hot Button Toolbars

The XStudio Cart Wall dialog contains several toolbars which are used to change appearance and provide functionality.

All toolbars can be moved to a different docking location, floated or hidden completely. Additionally, individual buttons can be shown or hidden based on your preferences. Initially, the ***Hot Button Files***, ***Settings*** and ***Utilities*** toolbars are displayed, similar to the example shown here.

Default Toolbars

The ***Settings*** toolbar controls the visibility of the ***Button Settings*** and ***Tab Settings*** toolbars. When depressed, these button cause the associated toolbar to be displayed similar to the example shown.

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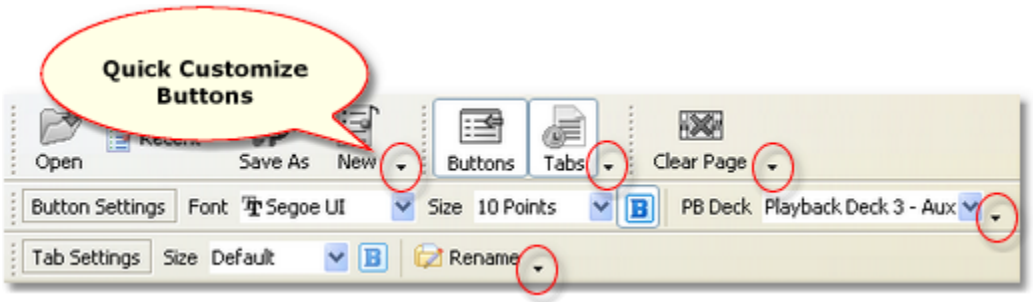


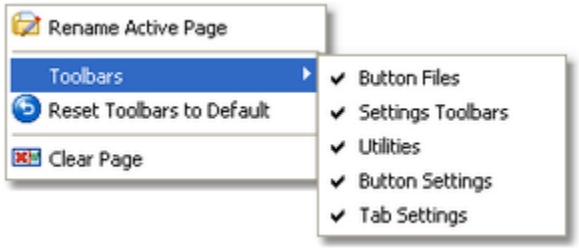
All Hot Button Toolbars

Each toolbar has a quick customize button displayed at the end of a docked toolbar and on the caption title of a floating toolbar. Clicking on the quick customize button activates a popup menu which contains a list of buttons on that toolbar. You can select the ones you wish to display and uncheck the ones you want to hide.

All the toolbars are gone - how do I get them back?

Since each toolbar can be hidden, it's possible you might at some point hide them all. At that point, it might not be readily apparent how to restore one or more toolbars to visibility.

To restore one one or more hidden toolbars to visibility, position the mouse cursor over a page name tab and [**Right-Click**]. A pop-up menu will appear similar to the one shown.



Popup Menu to Display/Hide Toolbars

Select the ***Toolbars*** menu item, which folds out to display available toolbars. Check the bars you wish displayed. If you want to reset the toolbars to the application default location and visibility, select the menu item ***Reset Toolbars to Default***.

5.14.3 Adjusting Button Settings

Global button settings, including a font name, font size and bold text attribute, can be adjusted using the ***Button Settings*** toolbar.

Button Settings Toobar

Using this toolbar, you can adjust various button properties for the currently-loaded button set. Available buttons and their usage are outlined in the table below.

Button	***Usage***
Font	Select a font from the drop-down list of available fonts. All buttons are immediately updated.

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Button	***Usage***
Size	Select one of the available font sizes from the drop-down list. The text size of all buttons is immediately updated.
Bold Attribute	Click to toggle bold text on and off. All buttons are immediately updated.
Playback Deck	Select one of the playback decks available in the drop-down list to set the default playback deck for the current button set. Buttons currently configured are unaffected. All buttons not configured are immediately updated to reflect the new default playback deck.

Button settings properties are unique to each button settings file and are restored each time the button set is reloaded.

5.14.4 Adjusting Page (Tab) Settings

Settings for the page identifiers (tabs) can be adjusted using the ***Tab Settings*** toolbar. You can control the font size and bold text attribute as well as change page titles.

Tab Settings Toolbar

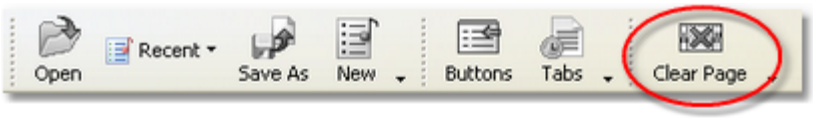
Available buttons and their usage are outlined in the table below.

Button	***Usage***
Size	Select one of the available font sizes from the drop-down list. The text size of all page titles are immediately updated.
Bold Attribute	Click to toggle bold title text on and off. All page titles are immediately updated.
Rename	Use this button to rename the currently-select page (tab). A dialog is displayed containing the current title text. Edit as desired and click on the [**OK**] button to save the changes.

Tab settings properties are unique to each button settings file and are restored each time the button set is reloaded.

5.14.5 Clearing an Entire Page of Buttons

You can can remove (or "clear") the contents of an entire page of buttons using the ***Utilities*** toolbar [**Clear Page**] button.



Select the page you want to clear and click on the [**Clear Page**] button. You'll be prompted to confirm that you wish to remove ("clear") all buttons on the selected page.

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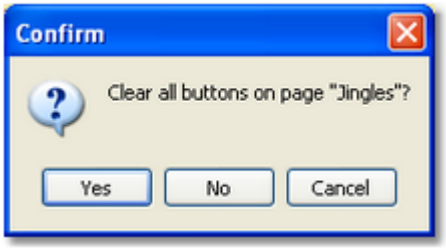


Clearing a page cannot be undone. Make sure you really want to remove all buttons' configuration info on the page and that the selected page is really the one you want to clear.

Clearing an entire page has the same effect as if you cleared each button one-by-one. It resets every button on the selected page to the default "not configured" properties. Button colors are changed to the default background and text colors and all cart numbers, descriptions and other text are removed from the buttons.

5.14.6 Working with Hot Button File Sets

XStudio stores its Cart Wall button configurations in "sets" (files) that can be loaded on-demand. Each button configuration file (set) contains the following information:

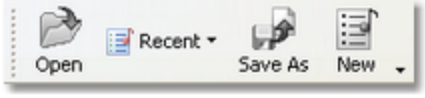
- The name of the font to be used for buttons
- The button font size
- The button font bold attribute
- The default playback deck to be used when configuring buttons
- The page (tab) font size
- The page (tab) font bold attribute
- Properties for each button that has been configured - this could be as few as one button or as many as 300 buttons

The current button file (set) is remembered each time XStudio closes and restored the next time XStudio is launched.

XStudio initially assigns a default button file name which is used if you simply begin programming buttons without assigning a particular name. If you choose not to create additional sets of buttons, this file (button set) will be used exclusively. As a default, all button files have a file extension of ***.btn***.

Managing Button Sets

To create a new button file set, open an existing set or save the current set under a different name, use the ***Hot Button Files*** toolbar, which appears similar to the example shown.



Hot Button Files Toolbar

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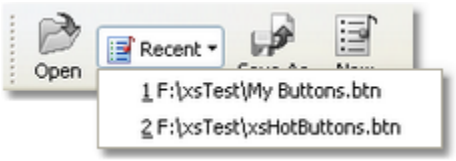
Available buttons and their usage are outlined in the table below.

Button	***Usage***
Open	This button displays an open file dialog listing available button files in the current folder. You can navigate to other folders as needed to locate previously-saved button sets.
Recent	This button displays a list of the most recently opened button sets. Select an item from the list to immediately open it.  If the selected button file no longer exists, you will be prompted to confirm whether or not the button file name should be removed from the recently-opened list.
Save As	This button displays a save file dialog that allows you to enter a new name under which to save the current button settings. In effect, using Save As "clones" the current button file.
New	This button creates a new, empty button file under a name you choose. The default values for the button font name, font size, bold attribute and default playback deck number are stored, along with the default tab font size and bold attribute.

A button file containing configuration information for all buttons will consume approximately 45KB of disk space.

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5.15 Using the XStudio Clock & Backtimer

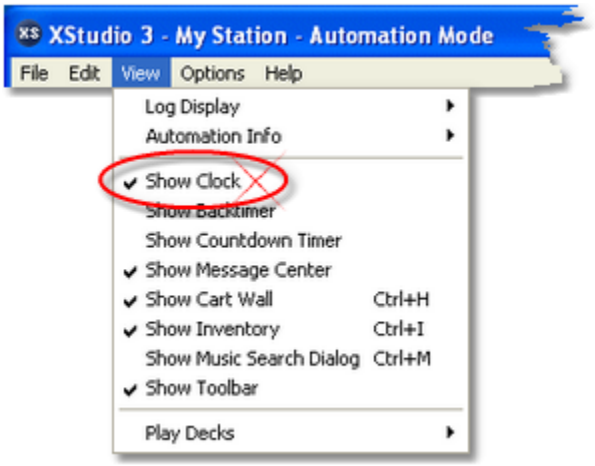
The XStudio clock is a floating window used to display the current time in either military or standard AM/PM time formats. In addition, the XStudio Backtimer display can be enabled.

XStudio Clock

> The clock is disabled (hidden) as a default and does not display the very first time XStudio is launched. When XStudio is closed, the clock state (shown/ hidden, position, colors and size) is recorded and restored the next time XStudio is started.

Showing or Hiding the Clock Display

To show or hide the clock, select the main menu item **View | Show Clock**. The menu item is checked when the clock is displayed.



The menu item acts as a toggle, alternately hiding and displaying the clock. The clock state is stored on program exit and restored on program startup.

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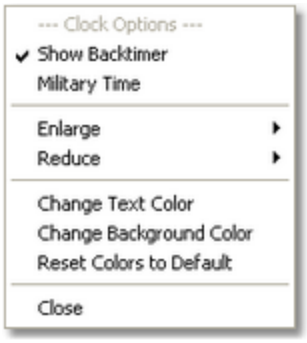
Changing the Clock Appearance

You can modify the clock appearance, including the time display type, size of the text, text color and background color. To do so, [**Right-Click**] on the clock time text to display the clock properties menu.



Select the item you wish to change. Depending on the item you choose, the change will either be made immediately or you'll be prompted to make an option selection. Review details of each menu item for the clock display in the following table.

Menu Item	***Description***
Show Backtimer	When checked, the XStudio Backtimer is enabled and visible.
	Because the backtimer is an integral part of the clock display, if the clock is hidden, so is the backtimer information
Military Time	Toggles the time display between standard AM/PM and military time.
Enlarge	Displays a submenu for enlarging the display size of the clock, the backtimer or both.
┗ Clock Text (+)	When selected, the text size of the displayed time is made larger, up to a maximum of 54 points. The text size can also be enlarged using the [**UpArrow**] and [**+**] keys on the numeric keypad when the window is active.
┗ Backtimer Text (Ctrl +)	When selected, the text size of the backtimer text is made larger, up to a maximum of 54 points. The text size can also be enlarged using the [**Ctrl-UpArrow**] and [**Ctrl-+**] keys on the numeric keypad when the window is active.
┗ Both (Shift +)	When selected, the text size of both displayed time and backtimer are made larger, up to a maximum of 54 points. The text size can also be enlarged using the [**Shift-UpArrow**] and [**Shift-+**] keys on the numeric keypad when the window is active.
Reduce	Displays a submenu for reducing the display size of the clock, the backtimer or both.
┗ Clock Text (-)	When selected, the text size of the displayed time is made smaller, down to a minimum of 13 points. The text size can also

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Menu Item	*Description*
	be reduced using the [**DnArrow**] and [**-**] keys on the numeric keypad when the window is active.
┗ Backtimer Text (Ctrl -)	When selected, the text size of the backtimer text is made smaller, down to a minimum of 13 points. The text size can also be reduced using the [**Ctrl-DnArrow**] and [**Ctrl -**] keys on the numeric keypad when the window is active.
┗ Both (Shift -)	When selected, the text size of both displayed time and backtimer text are made smaller, down to a minimum of 13 points. The text size can also be reduced using the [**Shift-DnArrow**] and [**Shift -**] keys on the numeric keypad when the window is active.
Change Text Color	Displays a color customization dialog to choose the color of the clock's time text.
Change Background Color	Displays a color customization dialog to choose the color of the clock's background.
Reset Colors to Default	Resets the clock's time text and background color to XStudio defaults.
Close	Hides the XStudio clock and backtimer (if enabled).

5.15.1 About the XStudio Backtimer

The XStudio Backtimer is a tool to help determine how much audio content remains to be played in the current hour versus how much time is left in the hour. Comparing these values produces an "over/under" time value that can be used as a reference in making on-the-fly adjustments. If XStudio is short of content, a negative value is displayed and if long, a positive value is displayed. The backtimer assumes that all log content remaining in a given hour and present in the audio inventory will be played to completion.

The backtimer is a part of the floating clock window and can be either enabled (visible) or disabled (hidden). When enabled, the clock display appears similar to the example shown.

XStudio Clock with Backtimer Enabled

The backtimer display can be enabled or disabled in either of two ways: a) Use the clock's pop-up menu; or b) Use the XStudio main menu item **View | Show Backtimer**.

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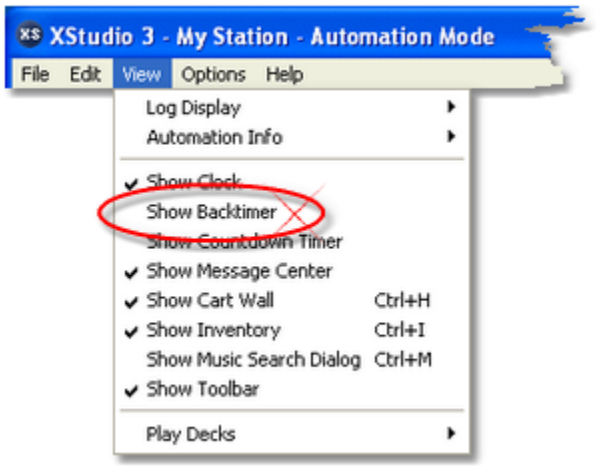

Because the backtimer is an integral part of the clock display, if the backtimer is shown, the clock display is also forced to a visible state. When hiding the backtimer, though, the clock remains visible unless explicitly hidden.

How the Backtimer Works

To arrive at the over/under value, the remaining air play time of any item playing in Deck 1 (the on-air channel) is summed with amount of content remaining in a given hour, starting with the "**Next-to-Play**" item on the log.

Backtimer starting point for remaining log content

The remaining content total is compared with the time left in the hour (top of the next hour less current clock time) to produce the over/under value displayed in the backtimer. If remaining content to play is less than the amount of time remaining in the hour, a negative (**-**) value is displayed. If remaining content to play is greater than the amount of time remaining in the hour, a positive (**+**) value is displayed.

Hint

For best results, the log should contain a non-audio item (Directive, Program Title, Log Note) at the top of each hour to clearly mark the start of an hour. If the first non-audio element in a given hour is at a later time, audio elements intended for the hour end up being a part of the preceding hour, which could distort the backtimer value.

Backtimer resolution is one second, with each audio item rounded to the nearest second.

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Backtimer Notes

Here are some additional points of interest that apply to the XStudio Backtimer:

1. When calculating the remaining playable log content, it is always calculated forward from the current "**Next-to-Play**" position on the log to the end of the current actual clock hour. If the Next-to-Play item is in a previous hour, remaining content is the sum of playable items between Next-to-Play and the end of the current hour on the log. If Next-to-Play is an hour beyond the current hour, as might happen when starting a log item for the 3:00 PM hour at 2:59 PM, the remaining current hour log content value is zero.
2. Only items playing in Deck 1 are used in backtimer calculations. Items that might be played ad-hoc on Decks 2, 3, or 4 are not used in calculations.
3. To be included in the remaining playable log content, the log item must be present in the audio inventory. Missing audio is not included in calculations.
4. if Enforce Cart Dates (in Preferences) is enabled, then in addition to being in the inventory, the log item must also be valid for today's date to be included in calculations.
5. Hourly time calculations look strictly at log content for a given hour without regard for Hard Sync or Cast-Off (Soft Sync) directives. The calculation assumes that all playable content will be played to completion.
6. If multiple items are playing on Deck 1, only the last-started element is used in the calculation.
7. If the Display Countdown to Aux Mark option (in Preferences) is **not** enabled (the default), the backtimer value will have a tendency to change a bit even though the log has not changed. This is particularly true when XStudio is transitioning from one item to another. The backtimer value is based on calculations to the Aux Mark, so when transitioning from one audio item to another, the backtimer value will decrease slightly (the difference between the Aux Mark and actual audio end) and then increase slightly - the difference between the Aux Mark and actual audio end of the new item. Depending on the audio item currently playing the backtimer value could be off by several seconds. To increase accuracy, turn the Display Countdown to Aux Mark item (in Preferences) on (checked).
8. The maximum calculated hourly length is 23:59:59 (essentially one day). If calculations produce a greater value, errors will occur.
9. If no log is present, the backtimer will display remaining time in the hour minus any item playing on Deck 1.

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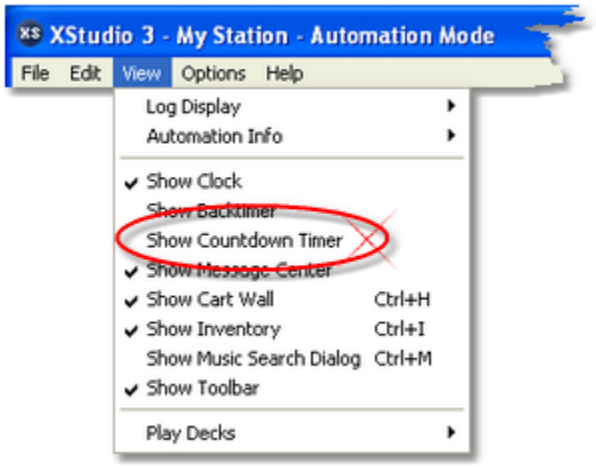
5.16 Using the XStudio Intro Countdown Timer

Using the XStudio Intro Countdown Timer is optional and depends on the log having intro times included in the music items. Intro times are generally provided via a music scheduling system's exported music log, but can be entered directly by editing a log item. The intro time value is located in the log record's Type Code field.

Enabling the Intro Countdown Timer

To enable and make visible the Intro Countdown Timer, select the menu item **View | Show Countdown Timer**. Checking the item enables and displays the timer, unchecking hides the timer and either disables or temporarily hides the timer, depending on timer options.



When the Intro Countdown Timer has been enabled, each time a log item with a valid intro time is played, the timer is activated. The countdown begins with the log intro value and counts down each second to zero.

> The intro countdown timer is hidden as a default and does not display the very first time XStudio is launched. When XStudio is closed, the countdown timer's state (shown/hidden and screen position) is recorded and restored the next time XStudio is started.

Using the Intro Countdown Timer

As the Intro Countdown Timer is running, it counts time down each second. As the remaining time gets closer to zero, the timer color changes, similar to the examples shown.

Intro Count Down Timer Color Changes

The countdown finishes at zero and either remains visible or is automatically hidden, depending on timer options.

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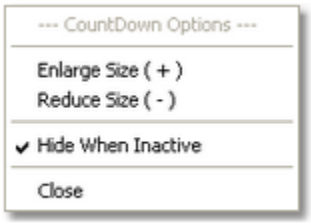
Intro Countdown Timer Options Menu

You can change the size of the countdown timer dialog and enable or disable its auto-hide feature by using the dialog's popup menu. [**Right-Click**] on the Intro Countdown Timer dialog to display the options menu.



Intro Countdown Timer Pop-Up Options Menu

Menu Item	***Description***
Enlarge Size	When selected, the text size of the displayed time is made larger, up to a maximum of 120 points. The text size can also be enlarged using the [**UpArrow**] and [**+**] keys on the numeric keypad when the window is active.
Reduce Size	When selected, the text size of the displayed time is made smaller, down to a minimum of 23 points. The text size can also be reduced using the [**DnArrow**] and [**-**] keys on the numeric keypad when the window is active.
Hide When Inactive	When this item is checked, the countdown timer will be hidden when the countdown reaches zero. The dialog will remain hidden until a log element containing a valid intro time value is played and is then redisplayed.

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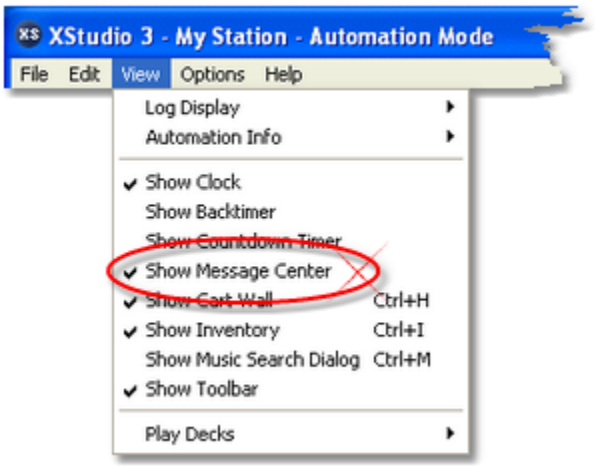
5.17 Using the XStudio Message Center

The XStudio Message Center is a floating dialog used to display text messages that originate from the execution of a Banner Message task. When this task type is executed, the XStudio Message Center dialog is automatically shown.

The Message Center background and text colors, duration of the message and whether or not text blinks are controlled by the Banner Message task properties. The width, height and screen position of the Message Center dialog is managed by the user.

The Message Center dialog can be manually shown or hidden by the user with the XStudio main menu item ***View | Show Message Center***.



Manually showing or hiding the Message Center dialog does not affect the message contents.

Message Center Size and Position

The Message Center size (width and height) and screen location can be adjusted to suit your preferences. To adjust the width and height, [**Left-Click**] and hold the mouse button down while dragging one of the Message Center borders. To position the Message Center, [**Left-Click**] and hold the mouse button down on the title bar to drag the Message Center dialog to the desired location. When the Message Center dialog is re-sized, the message text (if any) size is automatically adjusted to fit the new height and width of the text panel.

Message Center Menu Options

The Message Center has a pop-up menu that can be used to modify its behavior. [**Right-Click**] on the Message Center text panel to display the pop-up menu.

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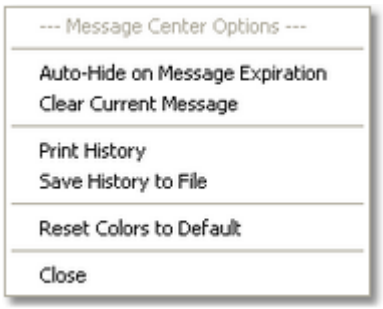

Menu Item	***Description***
Auto-Hide on Message Expiration	Click on this menu item to toggle whether or not the Message Center hides itself when a message that has an assigned duration expires. If the menu item is checked, the auto-hide feature is enabled. The default is to not hide the Message Center when a message expires (unchecked).
Clear Current Message	Select this menu item to manually clear the current message.
Print History	Select this menu item to print the Message Center history list. The history list is sent to the default printer.
Save History to File	Select this menu item to save the Message Center history list to a file. You will be prompted for a file name.
Reset Colors to Default	This menu item changes the message background and text color to the system default. On receipt of the next message, the background color and text color may be changed based on the Banner Message task properties.
Close	Select this menu item to hide the Message Center dialog. The current message, if any, is unaffected.

Message Center History

When new messages are processed in the XStudio Message Center, the existing message (if present) is added to a history list. The history list contains the ten (10) most-recent messages that have been displayed in the Message Center. To view the history, click on the [**Show History**] link at the lower-left-corner of the Message Center. The Message Center dialog will expand to display the history.

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To hide the history list, click on the [**Hide History**] link at the lower-left-corner of the Message Center text panel.

The Message Center history list can be printed or saved to a file if desired. Refer to the previous section on ***Message Center Menu Options*** for additional information.

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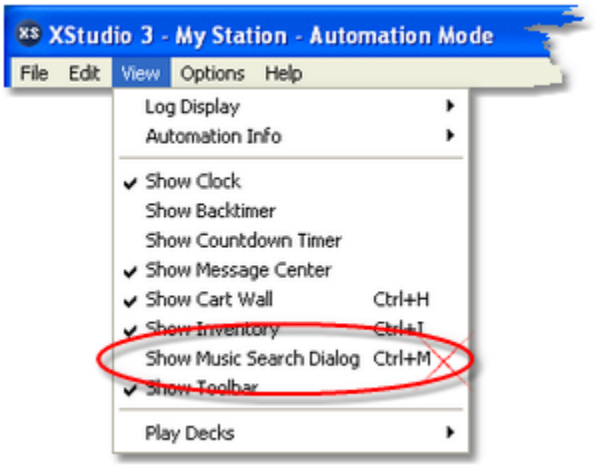
5.18 Using the XStudio Music Search Dialog

The Music Search Dialog is a tool for quickly finding songs by cart number, song title or artist. Partial match searches and a set of filtering and grouping functions are built in.

> Music information displayed in this dialog comes from the XStudio music data table, which is normally created by importing song information from a music scheduling system export. If the music data table is empty, the dialog does not display. See the topic on Music Data for information on exporting from a music scheduling system and importing into XStudio.

To display the Music Search Dialog, select the menu item **View | Show Music Search Dialog** or use the shortcut key [**Ctrl-M**].



At first launch, all current song data is loaded from the music table. The display is automatically refreshed if the music data changes.

The upper portion of the display contains edit boxes and controls for searching the music. Searches allow you to enter partial text, select the column to search, search for text starting at the beginning of the field or anywhere in the field. You can also search backward, if desired.

Once located, songs can be dragged onto the log, onto a hot button or into the audio clipboard. [**Left-Click**].on the song and hold the mouse button down. Drag the item to the desired target and release the mouse button to drop the song.

Song information is displayed in tabular format - rows of information, each containing columns of individual record fields (Cart Number, Title, Artist). The display of records can be manipulated in a number of different ways to organize or limit information that is shown. Information can be sorted, grouped and filtered for ease of working with or finding specific songs. Additionally, individual columns in the table can be moved and resized to suit your needs.

> Hint For more information on working with tabular data displays in XStudio, see the topic on Common Table Display Functionality.

As a default, the music information is sorted by Cart Number in ascending order. You can change the sort order by clicking on a column header (e.g., "Title" column). Clicking on the column header a second time sorts the column in descending order.

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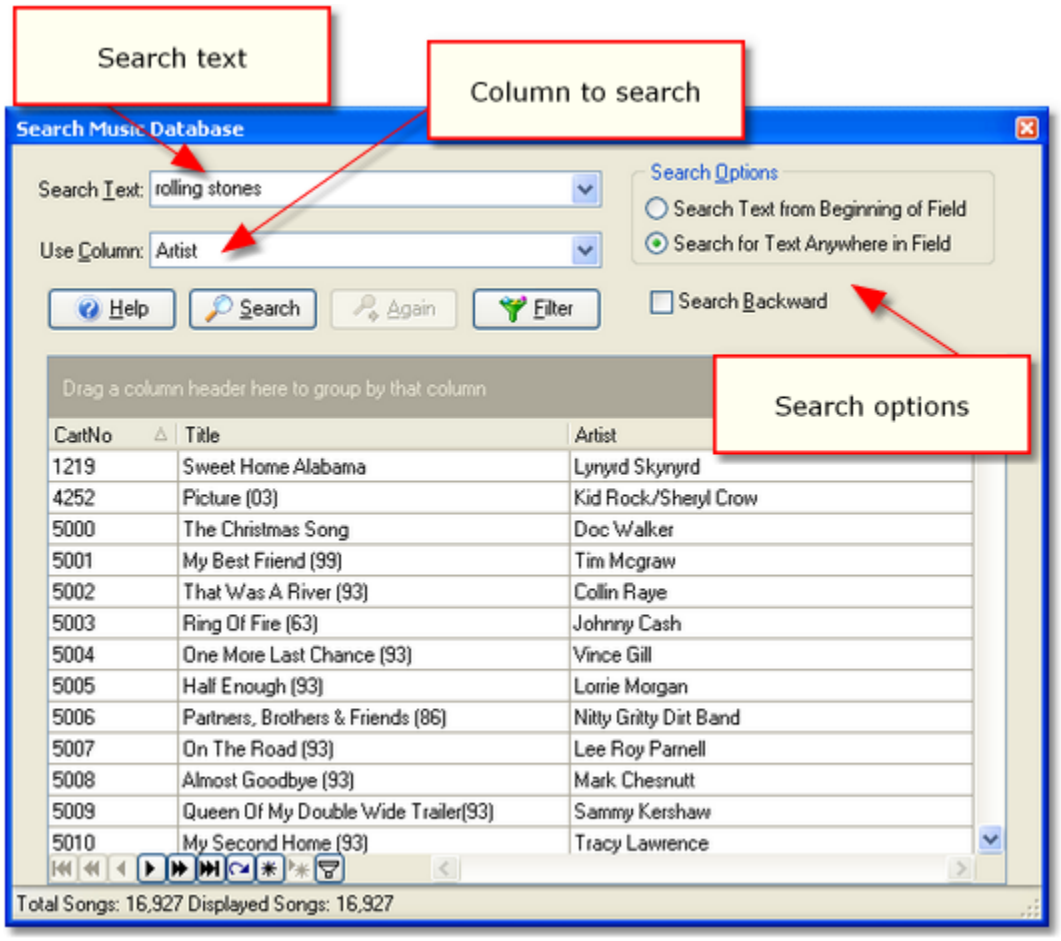
Search text
Column to search
Search Music Database
Search Text: rolling stones
Use Column: Artist
Search Options
Search Text from Beginning of Field
Search for Text Anywhere in Field
Help
Search
Again
Filter
Search Backward
Search options
Drag a column header here to group by that column
CartNo
Title
Artist
1219 Sweet Home Alabama Lynyrd Skynyrd
4252 Picture (03) Kid Rock/Sheryl Crow
5000 The Christmas Song Doc Walker
5001 My Best Friend (99) Tim Mcgraw
5002 That Was A River (93) Collin Raye
5003 Ring Of Fire (63) Johnny Cash
5004 One More Last Chance (93) Vince Gill
5005 Half Enough (93) Lorrie Morgan
5006 Partners, Brothers & Friends (86) Nitty Gritty Dirt Band
5007 On The Road (93) Lee Roy Parnell
5008 Almost Goodbye (93) Mark Chesnutt
5009 Queen Of My Double Wide Trailer(93) Sammy Kershaw
5010 My Second Home (93) Tracy Lawrence
Total Songs: 16,927 Displayed Songs: 16,927

XStudio Music Search Dialog

Finding Songs Using the Search Panel

The most common way of locating a particular song is to use the search panel, located at the top of the dialog. Enter a portion of the title or artist you're looking for, select the column (Cart Number, Title, Artist) in which to look from the drop-down list of columns and select the search option (either search from beginning of field or anywhere in the field). Click on the [**Search**] button. The first song matching the text you entered will be located. To find the next matching song, click on the [**Again**] button.

> **Hint** You can use the keyboard shortcuts [**F11**] and [**F12**] to search and search again, respectively.

Finding Songs Using Incremental Searches

You can also search of a cart number, title or artist using what's known as incremental searching. Click on a cart number, title or artist and start typing. As you type, the display scrolls to a matching record. Typed characters are matched from the beginning of the field.

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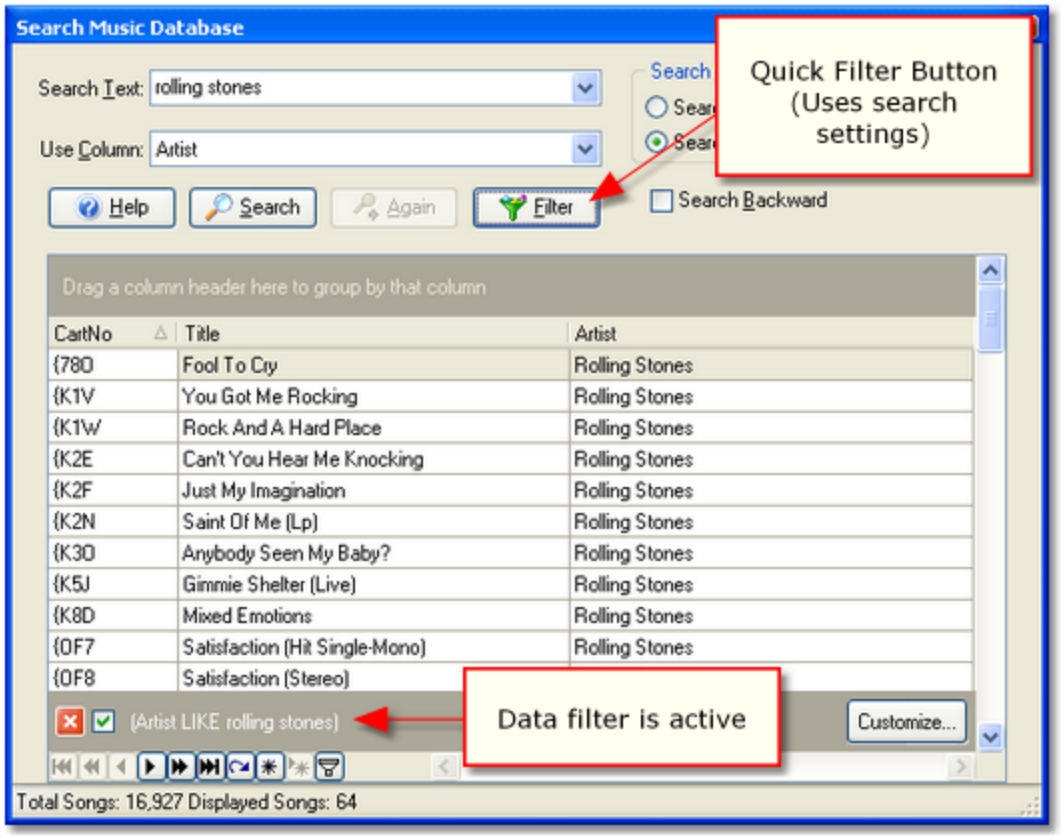
Finding Songs Using Quick Filter

The Quick Filter is a convenient way of locating all songs matching your search text. Once you've entered the text to search for, selected the column to search and set search options, click on the [**Filter**] button. Filtering is activated and only those songs matching your search text are displayed, as shown.


Search Music Database
Search Text: rolling stones
Use Column: Artist
Help
Search
Again
Filter
Search Backward
Quick Filter Button (Uses search settings)
Drag a column header here to group by that column
CartNo
Title
Artist
(780 Fool To Cry Rolling Stones
(K1V You Got Me Rocking Rolling Stones
(K1W Rock And A Hard Place Rolling Stones
(K2E Can't You Hear Me Knocking Rolling Stones
(K2F Just My Imagination Rolling Stones
(K2N Saint Of Me (Lp) Rolling Stones
(K30 Anybody Seen My Baby? Rolling Stones
(K5J Gimmie Shelter (Live) Rolling Stones
(K8D Mixed Emotions Rolling Stones
(0F7 Satisfaction (Hit Single-Mono) Rolling Stones
(0F8 Satisfaction (Stereo)
(Artist LIKE rolling stones)
Data filter is active
Customize...
Total Songs: 16,927 Displayed Songs: 64

Songs filtered by Artist

When you use the Quick Filter, the display indicates that filtering is active, as shown above. You can temporarily disable the search by clicking on the check box in the filter panel at the bottom of the display. To refine your filter, click on the [**Customize**] button, which displays a custom filter dialog that offers additional flexibility in filtering song information. To cancel a filter and redisplay all songs, click on the [**X**] button in the filter panel.

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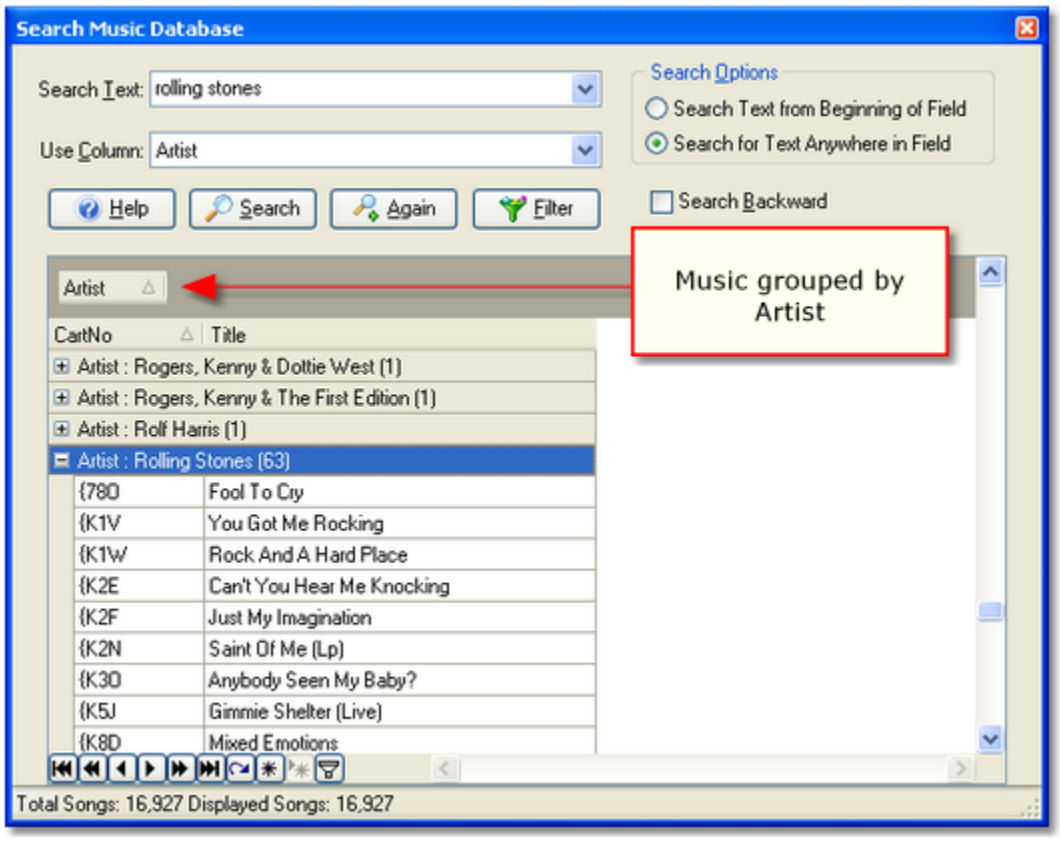
Grouping Songs by Artist

Grouping songs by Artist is a handy feature that organizes songs by artist and presents you with a display similar to the example shown. Grouping by Artist is useful if you're looking for a song by a particular artist and want to know what titles are available.



Songs grouped by Artist

To group music by Artist, [**Left-Click**] on the Artist column header and hold the mouse button down. Drag the header into the group panel immediately above the displayed data. To remove grouping, [**Left-Click**] n the Artist header in the group panel and hold down the mouse button. Drag the header over the displayed information (the cursor changes to an "X") and drop it by releasing the mouse button.

Additional Music Search Dialog Notes

1. Grouping and filtering can be used in combination. For instance, you could filter songs that contain the word "love" in the title, then group the result by artist. The order in which you group and filter is not important - the result will be the same.
2. Up to 15 previous search text entries are remembered and available in the Search Text drop-down list.
3. If you change column widths or re-order the columns, the settings are saved when XStudio closes and restored the next time XStudio is launched.
4. If you use the custom filter dialog to create more complex filters, they can be saved and re-used at a later date. The custom filter dialog has a [**Save As**] and an [**Open**] button for this purpose. Creating complex filters is beyond the scope of this document but experimenting with filters has no

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negative effects as filtering does not change the underlying music data - filtering merely changes which songs are displayed.

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5.19 Using the XStudio Relay Queue Maintenance Dialog

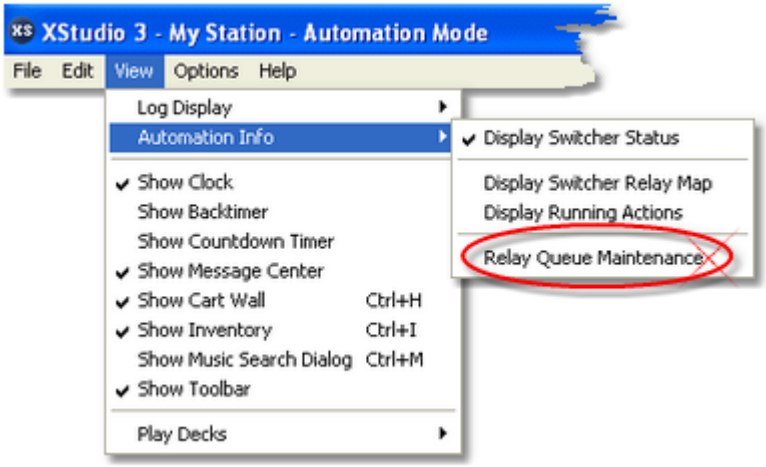
When a Start Play Task that uses a Cart Rotation List is executed for the first time, XStudio invisibly adds the task to its relay queue manager. The relay queue manager is responsible for rotating the items in the Cart Rotation List for those tasks that have multiple cart numbers assigned to the list.

When the task is executed a second and subsequent times while XStudio is running, cart number rotation occurs. Carts that are missing or out-of-date (if Enforce Cart Dates is enabled) are skipped. When XStudio is closed, the relay queue manager discards all items in the queue. When XStudio is started again, the relay queue manager will be empty and each Start Play Task using the Cart Rotation List will start with the first item in the list. As these types of tasks are executed, they are added to the relay queue manager.

Sometimes, you might need to modify a particular task's rotation list or change the item that will be next-to-play when the task is next executed. For instance, there might be a weather event in the area and you want to add an announcement to run every other time a liner is called by your satellite programming service. The Relay Queue Maintenance Dialog is used for this purpose - temporarily adding or removing carts in the relay queue for a given task.

> Only tasks that have been executed at least once during the current XStudio session will appear in the active relay queue items list and be available for maintenance. For any tasks that have not yet executed, you can edit the master task record in the Automation Database Maintenance dialog if you wish to change the cart rotation list. However, unlike changes made in the Relay Queue Maintenance Dialog, which are in effect only until XStudio is restarted, changing the master task record is considered a permanent change.

Tasks of this type are most often associated with Satellite mode operations and the cart numbers in the Cart Rotation List often contain cart macro characters, including the Current Voice (also known as Voice Number). For this reason, you can also use the Relay Queue Maintenance Dialog to change the Current Voice value on-the-fly rather than with the normal methods (using a log Directive or Set Voice task).



To display the Relay Queue Maintenance Dialog, select the XStudio main menu item **View | Automation Info | Relay Queue Maintenance**. The dialog will be similar to the example shown.

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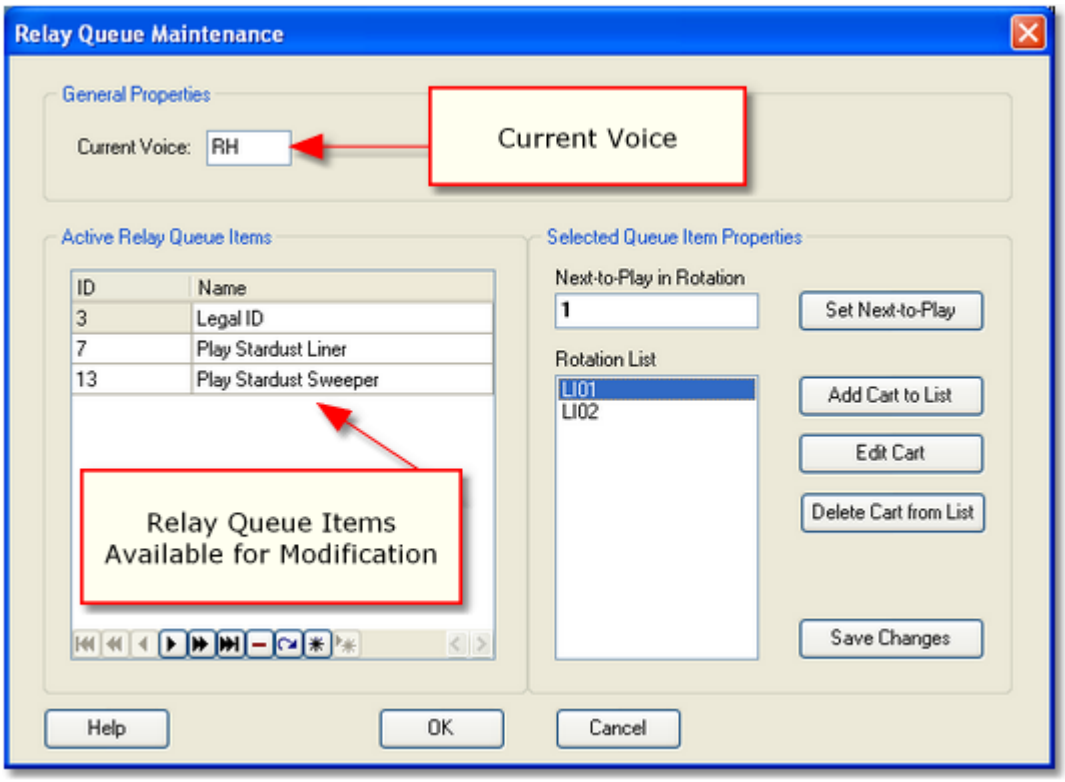

Relay Queue Maintenance Dialog

Changing the Current Voice Value

To modify the XStudio global Current Voice value, select the "Current Voice" field and type in the 2-character voice value you want to become the new Current Voice. The new value will be updated in XStudio when you close the dialog by clicking on the [**OK**] button. To discard the changes you made to the Current Voice field, click on the [**Cancel**] button, which closes the dialog with saving the change.

Removing (Deleting) an Active Relay Queue Item

Items that appear in the Active Relay Queue Items list are Start Play tasks that use a Cart Rotation List and have been executed at least once since XStudio was last started. The list of items is managed by XStudio's relay queue manager while XStudio is running. Once an item is added to the relay queue manager list, the cart rotation list and next-to-play properties are not updated from the tasks database table even if the underlying task is modified in the Automation Database Maintenance dialog.

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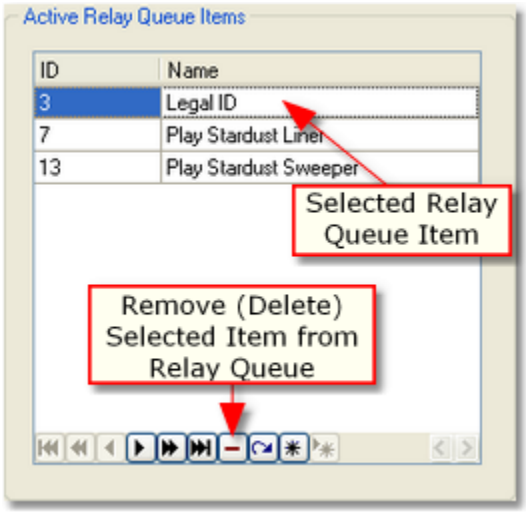

Active Relay Queue Items

There might be a circumstance where you would like to remove the an item from the managed list - for instance, if you have significantly modified the rotation list in the task and essentially want to "start over" with the cart rotation list.

To remove an active relay queue item from the list, select the item in the list and click on the [**-**] (Delete) button on the data navigator located at the bottom of the list. You can also use the [**Delete**] key. After prompting to confirm that you want to remove it, XStudio removes the item from the list of active relay queue items. ***This does not remove the task from the Tasks database table , the item is removed only from the active items list.***

> **Hint** The next time the deleted task item is executed by XStudio, the first cart number in its rotation list will be played and the task item will be added back to the list of active relay queue items.

Refreshing the Active Relay Queue Items List

Active relay queue items are added dynamically by XStudio as a task is run for the first time. An item could be added to the list while you are viewing and modifying other relay queue items. You can refresh the list to see any new additions since you opened the dialog by clicking on the [**Refresh Data**] button on the data navigator located at the bottom of the list. Float your mouse cursor over the buttons to display the button's functionality in text form. If you have unsaved changes to a relay queue item, you are prompted to confirm the changes can be discarded (or cancel the refresh) before the list is actually refreshed.

Modifying Active Relay Queue Items

Start Play tasks that use the Cart Rotation List and have been executed at least once during the current XStudio session are visible in the Relay Queue Maintenance Dialog. The dialog displays a list of the active items that includes the unique Task ID and Task Name.

To change the rotation list or Next-to-Play of an item, select the item in the Active Relay Queue Items panel, as shown.

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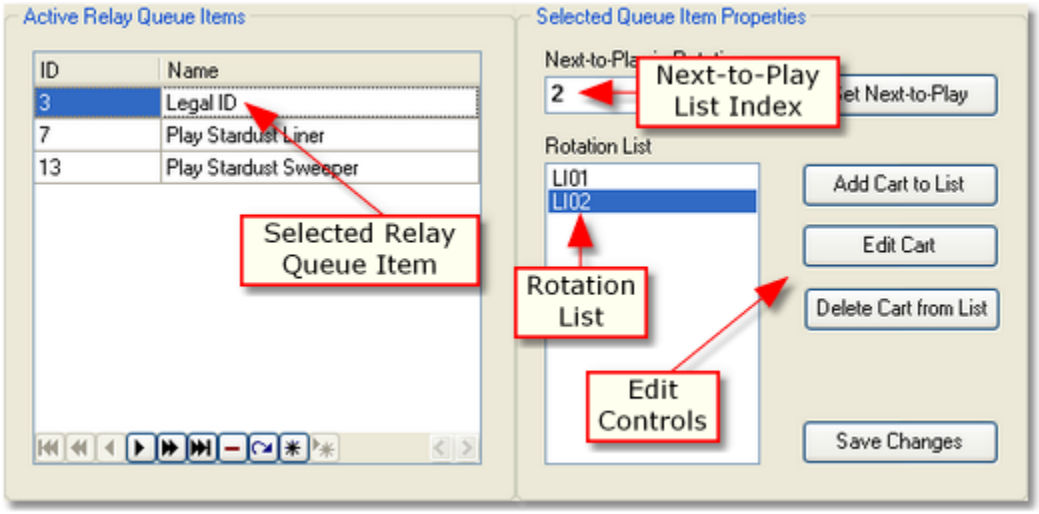

Active Relay Queue Item Selected

As a queue item is selected, the Queue Item Properties panel is updated and displays the task's Rotation List and the item that is Next-to-Play in the rotation. The Queue Items Properties panel is where changes to the selected item are made.

> Changes made to a relay queue item are in effect for the current XStudio session only. When XStudio is closed and restarted, all tasks are returned to their default next-to-play value and cart rotation lists.

Modification	***Instructions***
Change Next-to-Play	The cart number that is next up to be played is identified by its position in the list. To change the **Next-to-Play in Rotation** property, select the cart number in the list ([**Left-Click**]) that you want to play the next time the task is executed and click on the [**Set Next-to-Play**] button.
Add Cart to Rotation List	To add a cart to the rotation list, click on the [**Add Cart to List**] button or press the [**Insert**] key and enter the cart number. Cart numbers can contain cart macro characters.
Delete Cart from Rotation List	To remove a cart from the Rotation List, select the cart number and click on the [**Delete Cart from List**] button or press the [**Delete**] key. You are prompted to confirm the deletion.
Edit a Cart Number	To edit (change) a cart number in the rotation list, select the cart number and [**Double-Click**] on it or click on the [**Edit Cart**] button.
Re-order the Rotation List	To change the order of carts in the Rotation List, use the mouse to select a cart number, hold the mouse button down, drag it to a new position in the list and release the mouse button.
Save Item Property Changes	Whenever a change is made to the selected relay queue item, the [**Save Changes**] button is enabled. Click on this button to save the item changes.

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If changes have been made to a relay queue item and you attempt to select a different relay queue item, you will be prompted that there are unsaved changes and given the opportunity to save them, abandon the changes or cancel the selection of another relay queue item.

Closing the Relay Queue Maintenance Dialog

To close the dialog, click on the [**OK**] or [**Cancel**] button. When using the [**Cancel**] button to close the dialog, any changes made to the Current Voice value and any pending edits to a relay queue item are abandoned without a warning. If the [**OK**] button is used to close the dialog and there are pending changes to a relay queue item, you will be prompted to confirm that you wish to close without saving those changes. Closing this dialog using the [**OK**] button updates the Current Voice property in XStudio if it has been changed.

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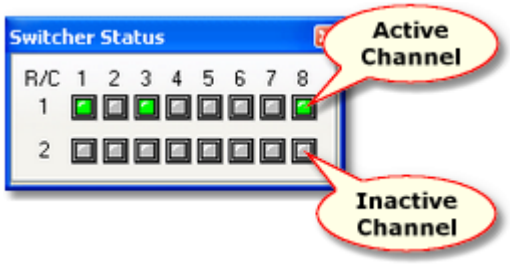
5.20 Using the XStudio Switcher Status Dialog

When you are using an audio switcher with XStudio, you can optionally display a status dialog that shows you the status of each of audio channels. Each time XStudio makes a change, the status display is updated. The status display is a floating window that can be moved around to your preferred position. It's size is fixed, based on the active audio switcher's number of audio input channels and audio output rows.

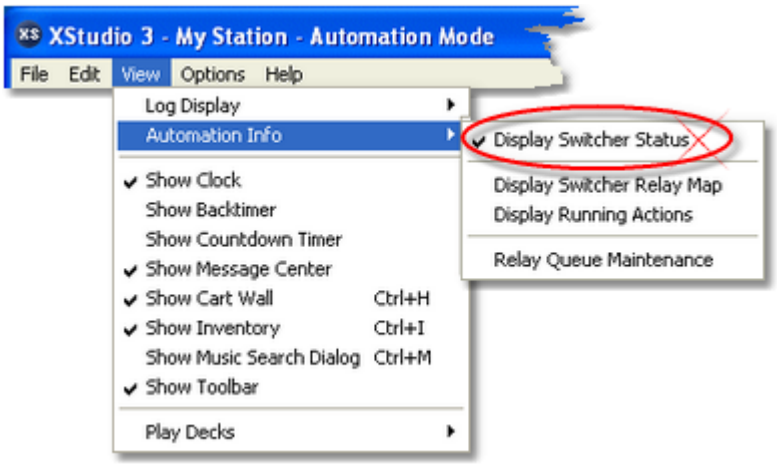


XStudio Switcher Status

> The switcher status dialog is hidden as a default and does not display the very first time XStudio is launched. When XStudio is closed, the switcher status dialog's state (shown/hidden and screen position) is recorded and restored the next time XStudio is started.

Showing or Hiding the Switcher Status Dialog

Use the main menu item **View | Automation Info | Display Switcher Status t**o show or hide the switcher status dialog.



The menu item acts as a toggle, alternately hiding and displaying the switcher status dialog. The dialog state is stored on program exit and restored on program startup.

Switcher Status Options Menu

You can refresh the switcher status data and enable the channel on/off toggle functionality by using the dialog's pop-up menu. [**Right-Click**] on the switcher status dialog to display the options menu.

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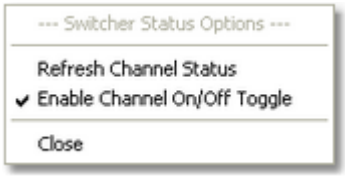

Switcher Status Pop-up Options Menu

Menu Item	***Description***
Refresh Channel Status	When selected, XStudio forces the audio switcher to re-send audio channel status data, thus updating the display. This is useful if you have manually changed a channel on the switcher by selecting the channel on the hardware itself.
Enable Channel On/Off Toggle	When this item is checked, toggling any of the displayed audio channels is enabled. You can turn on or turn off a given audio channel by clicking on it. If the channel was on, it is turned off and vice-versa. This item is unchecked as a default to prevent unintended channel toggling. If you wish to use this dialog to toggle channels on and off, you must re-enable (check) this item each time XStudio is launched.

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5.21 XEngine Reference

As a default, XStudio is supplied with XEngine, an audio playback engine that handles the actual playback of audio files. This separates the task of playing audio from the main application, which manages which audio items to play and when they are to be played or stopped, along with coordinating automated activity.

In fact, if you close XStudio while audio is playing and do not close XEngine, the audio will continue to play until playback is completed. This provides the flexibility to close XStudio for one reason or another, then restart the program before XEngine has completed playing whatever was playing when you closed XStudio.

Generally, you need not be concerned with XEngine under normal use of XStudio. However, there may be occasions where you need to work with XEngine directly. This section covers particulars on launching XEngine, the XEngine user interface, and a history of revisions to the audio engine.

5.21.1 XEngine Configuration

There is nothing specific to configure within XEngine. XStudio supplies needed settings, including setting the location of audio to be played, whether or not to play out-dated audio files, and the audio devices to use for playback.

If you make changes in the XStudio Preferences dialog that affect XEngine and save the changes while XEngine is running, it will detect most changes and update immediately. The exception is that if you change the TCP/IP port values, you will need to restart XEngine for the changes to take effect.

For additional information, see the topic on Audio Properties.

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5.21.2 Using XEngine

Under most circumstances, you will not interact with XEngine. XEngine functions as an audio server engine, processing commands from another application. The ***client application***, in this case XStudio, communicates directly via TCP/IP, issuing audio playback and stop play commands as needed or initiated by the end-user.

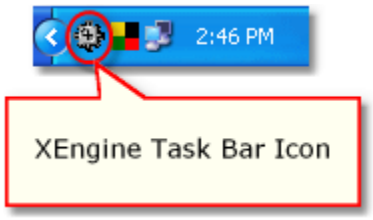
You do, however, need to ensure that XEngine is running so that it can service the requests of the client. The XStudio installation program generally creates a desktop link and will optionally include XEngine in the **Start | Programs | Startup** menu so that XEngine is automatically launched when a user logs in to Windows. If XEngine is not running, follow the steps below to start the program.

Launching XEngine

To start XEngine, locate the appropriate desktop shortcut or menu item, typically located in the **Start | Programs | XStudio** folder. XEngine will start and you may briefly see a "flash" on the screen as XEngine starts and immediately minimizes itself on the task bar.

> If you have installed the apt-X™ option, you may also see another dialog during the start-up process. This is the apt-X license display, indicating that you are using the encoder in ***EVALUATION*** mode. You can use the apt-X decoder for 10 days before you need to purchase a license to continue using the decoder. For details on apt-X registration, see the apt-X Encoder Registration topic.

When XEngine is ready to run, you will notice an item has been added to the Task Bar.



XEngine Task Bar Icon

Normally, checking to see that XEngine is running - by inspecting the Task Bar for the program icon - is all you need to be concerned with. The rest of this topic covers items that provide a bit more information, including the XEngine user interface and menus.

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XEngine User Interface

As mentioned, XEngine normally hides itself from the user, displaying only an icon on the Task Bar. You can, though, display the user interface if desired. To do so, [**Double-Click**] on the XEngine Task Bar icon.

XEngine User Interface

The main display, shown above, contains just a few key components, including basic information on any audio currently playing and a VU meter for each stream of audio being played. Here's an overview of the key components:

- **Title Bar**. The title bar contains information on the last command issued by the client application, showing the path and audio file name.
- **Menu Button**. The menu button is used to pop-up a system menu that includes an item to close (shut down) XEngine. See the section on the XEngine Main Menu for additional information on available menu choices.
- **TCP/IP Communications Status**. Text near the upper-right side of the display shows the TCP/IP communications status.
- **Channel Status Panels**. Each of the three available channels has a panel containing the cart number, audio type, Stereo/Mon indicator and VU meter for each of the three (3) streams supported for each channel.

XEngine Main Menu

To access the XEngine main menu, click on the [**Menu**] button. The main menu is displayed, similar to the example shown.

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XEngine Main Menu

The table below provides details on each of the main menu items.

Menu Item	***Description***
Open TCPIP	This item opens the specific TCP/IP port assigned to XEngine for communications with XStudio. Under normal circumstances, the communications port is automatically opened, but should a port conflict occur and you correct the conflict, you can use this menu item to try to reopen communications.
Close TCPIP	This item closes the assigned TCP/IP port. If you close the port, communications with XStudio is terminated and XEngine will no longer respond to playback commands.
Help	Displays the XEngine help file.
About	This item displays XEngine version information along with operating system information. You can also use the About screen to check whether or not apt-X is installed and available. If apt-X is available, the APT and apt-X logos are displayed.
Exit	Exits (shuts down) XEngine. To ensure that XEngine doesn't inadvertently get shut down, this is the only way you can close the program. Standard methods, like clicking on the application close button (the "**X**" at the right end of the title bar) or using the Windows [**Alt-F4**] keystroke, are disabled to prevent inadvertent closure.

> When you exit XStudio, you can also cause XEngine to close, if desired, by answering "**Yes**" to the prompt asking if you wish to close the audio engine.

XEngine Stream Menu

When XEngine is playing an audio file, a stream menu is enabled for the channel on which the audio is being played. To access the menu, float the mouse cursor over one of the cart numbers displayed and [**Right-Click**] to popup the menu.

XEngine Stream Menu

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As you can see from the example shown, the menu contains items for stopping the play of each of the three (3) audio streams supported for each channel. To stop a particular cart, select the menu item corresponding to the stream being used to play the cart. In each channel panel, stream numbers are ordered top to bottom - 1, 2 & 3.

5.21.3 What's New in XEngine

This section documents changes and enhancements to XEngine by version number.

Version 3.0.0.15 (Single-Instance)

1. **Enhancement**. Detection of actions embedded in carts has been added.
2. **Fix**. Certain carts created with version 1.4 audio file headers would contain an audible "tick" at the beginning of playback.

Version 3.0.0.8 (Single-Instance)

1. **Enhancement**. Automatic music fade functionality has been added. If enabled, audio matching the defined music cart category will be faded a user-specified amount and duration.
2. **Enhancement**. The number of audio buffers used by XEngine is now user-modifiable.
3. **Fix**. The countdown of remaining play time for large audio files (> 60+ minutes) was incorrect.
4. **Fix**. Playback countdown on deck 4 displayed erroneous values.

Version 3.0.0.2 (Single-Instance)

1. **Enhancement**. A fourth (4th) playback has been added. Like playbacks 1-3, it can handle up to three (3) streams of audio simultaneously.

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Troubleshooting

Part VI

XStudio has been designed to be as trouble-free as possible and has been thoroughly tested. However, not every usage scenario can be anticipated. This section is intended as a starting point for diagnosing and solving problems but should not be viewed as an all-encompassing source of problem resolution.

If the difficulty you're experiencing is not covered here, contact the dealer who provided you with XStudio first. Alternatively, you can contact dcsTools.com - see the topic on Technical Support.

Application Bugs or Errors

Bugs and errors generally fall into one of two categories - a bug, which is the application not doing something as you might have predicted it would, or an error, which is the failure of the application to run or perform a specific task altogether.

If you find a bug, report it. Every effort is made to ensure XStudio performs as expected, but there may be circumstances that were not predicted in the development of the software. See the section on Technical Support for information on reporting a bug.

If you encounter an error, you will get an error message indicating a severe failure and XStudio may terminate. Provisions are made to "catch" such errors and log the error information to a file in the XStudio application directory. The filename is **XStudio.elf**. Again, report any application errors you encounter. You may be asked to send the appropriate log file for analysis.

Basic Troubleshooting Steps

Before getting too far down the road in trying to find your problem, check these items to be sure your environment for running XStudio is correct and functioning properly:

1. Make sure your PC (the one on which you are running XStudio) meets the minimum hardware requirements for this application. See the section on system requirements for more information.
2. Make sure your PC is functioning properly. This is a broad statement, but suffice it to say that if your PC is suffering from "blue-screens" or is "locking up" for no apparent reason, the PC may be a part of the problem.
3. Ensure that the pathways to retrieving log files, and, if applicable, inventory files and audio files, are correct and "reachable" from your PC. If you are retrieving files from a LAN (local area network), make sure you are correctly connected to the LAN and can "see" the host file server.
4. Make sure that XEngine is started and running if you are using XStudio as a stand-alone playback system. XEngine must be launched separate from XStudio and appears as a tray icon in the Windows task bar when running.
5. If you are using a host DCS or Maestro as the host audio engine, ensure that the host system is running.
6. Make sure that you have a default printer assigned in your operating system. Some functions in XStudio might fail if you have no printers defined. These problems may at first seem unrelated to printing. Some of the dialogs in XStudio offer print capability and automatically check for a printer when the dialog is opened. Log Validation and Log Printing are examples.

If you feel that the absence of a printer is causing your problem and do not have or do not want a printer assigned to the PC running XStudio, one solution is to add a standard file printing device to the system. This software-only solution ensures that XStudio finds a "printer" when needed. Refer to your Windows

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> documentation for adding such a printer (actually, print driver) and configuring it properly. A commonly-used print driver is the Microsoft XPS Document Writer, which is available as a default on operating systems from Windows XP forward.

7. Make sure that you have adequate hard disk storage for files XStudio generates. XStudio can generate a significant amount of event data as system performance and actions are tracked throughout the day. As a default, XStudio keeps 14 days worth of daily event logs (as does XEngine) and the files can approach 3 MB in size or larger for each day's event log. Database files can also be significant in size. Depending on the number and types of audio files you are playing and whether or not they are located on a local drive, you may find that you are running short of disk space.

6.1 Audio Playback Problems

If you are having trouble with audio playback and are using XEngine as the host audio server, here are some items to check:

1. If audio files you are attempting to play back are apt-X™ files, make sure you have installed and licensed the apt-X support files. XEngine will play PCM (linear) and MPEG-2 files without additional software, but apt-X files require additional software that must be licensed. See the section on Installing XStudio for further details on making sure you have apt-X functionality installed.
2. Make sure the audio path is set properly in preferences and that the location is accessible to the PC. You may have that path set correctly but not have privileges in the designated folder. If you have the Generate and Use Local Inventory option set and do not have at least ***Read*** privileges in the audio folder, the XStudio inventory list will be empty, too.
3. Make sure that you have the proper audio output devices selected and that it is present in the system. This sort of problem most commonly shows up when using a PCMCIA or USB sound card as the playback output device and the device has been removed or disconnected.
4. If audio appears to be playing, but you cannot hear it, check to ensure that you have connected speakers or the external mixer to the correct audio output port(s) or jack(s) on your PC.
5. If audio levels are too low or too high, either change the software volume setting on your PC or adjust the gain level on your external mixer.
6. If you are getting unwanted sounds during playback, it is likely that the audio output device you have selected for XStudio is the same device being used by Windows for "system sounds". To prevent this, turn off sounds associated with Windows events in the ***Audio Properties | Sounds*** section of the OS.
7. If the audio is a LAN server, ensure that you have enough data bandwidth on the LAN to support direct playback from the server. This problem most commonly manifests itself as what is referred to as "audio skip" or audio "drop-out". Check to be sure that some other application on some other PC is not "hogging" all of the network bandwidth. If your audio library consists of mostly PCM (linear) files, this will create a larger network load than either MPEG or apt-X audio. This problem can be mitigated by increasing the number of audio buffers used by XEngine in Preferences on the Audio Properties page.

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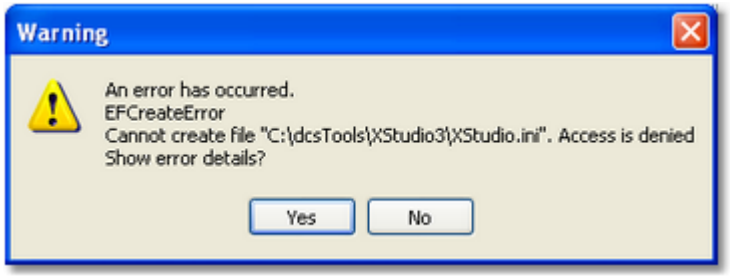
6.2 AV When Starting or Stopping XStudio

If you are running XStudio as standard user (one without administrative privileges), under certain circumstances you might get an error when starting up or closing down XStudio. An error message similar to the example shown may appear.



Note part of the example error text refers to being "***Unable to create the file***...". This error typically means that the logged-on user does not have sufficient read and write privileges in the folder where XStudio is installed. In order to use XStudio, the logged-on user must have privileges to read, write and create files in this folder.

When XStudio starts up, some data files in the application folder are created or if present, updated. Similarly, when XStudio is running or in the process of being shut down, preference settings are updated. If the logged-on user does not have sufficient rights in the folder, errors of this type will occur.

To correct the problem, the system administrator must add the needed privileges for the user or a group the user is a member of. In Windows XP or Windows 7, [**Right-Click**] on the XStudio folder and selecting the "**Security**" tab. Modify a listed group or add a specific user with the appropriate privileges.

The Security tab is displayed by default in Windows 7. However, in Windows XP, the tab is not displayed as a default. To display the Security tab in Windows XP, follow the steps outlined below.

Displaying a folder's Security tab in Windows XP

If the "Security" tab does not appear in Windows XP, you can make it visible by opening Folder Options in Control Panel.

a) Click **Start**, point to **Settings**, and then click **Control Panel**.

b) Click **Appearance and Themes**, and then click **Folder Options**.

c) On the **View** tab, under **Advanced Settings**, clear (uncheck) the "***Use simple file sharing [Recommended]***" item.

d) Click on the [**Apply**] button.

You can alternatively use the Windows Explorer **Tools | Folder Options**... menu item to access the View tab settings.

6.3 Problems Connecting to the Host Audio Engine

When using XStudio, you most commonly will be using the supplied XEngine audio engine, which is installed at the same time you install XStudio. However, XStudio also supports using either a DCS or a Maestro system as the host audio engine using our rcServer software to serve as an interpreter/ converter of the standard serial data control offered by these systems. This section covers the basics

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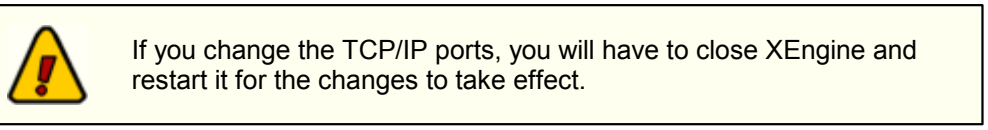
of troubleshooting XStudio connection and communications problems for each type of host.

6.3.1 XStudio Fails to Connect to XEngine

Here are the main items to check when XStudio complains that it cannot connect to XEngine:

1. Ensure that XEngine is running on the host PC. Check the task bar for the XEngine icon or launch Task Manager to see if XEngine is listed as a running task.
2. If both applications, XStudio and XEngine, are running on the same PC and XEngine is running but XStudio cannot connect, it may indicate that another application has control of the default TCP/IP ports the applications use to communicate. You can modify the default ports by opening Preferences and selecting the Audio Properties tab. The ports can be changed in the Host Audio Engine Connection section.

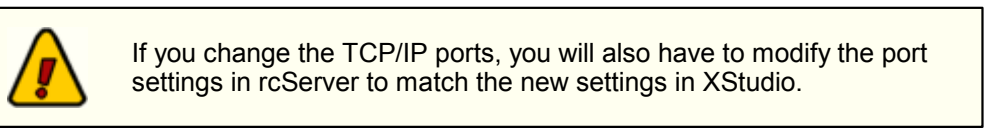


3. If both applications, XStudio and XEngine, are running on the same PC, open Preferences and select the Audio Properties tab. Check that the IP address in the Host Audio Engine Connection section is "**127.0.0.1**". If it has been changed from the default, reenter this value.
4. If XStudio and XEngine are running on different PC's, a firewall may be preventing communications on the ports being used. You may have to consult with your LAN administrator to determine this.

6.3.2 XStudio Fails to Connect to DCS or Maestro

If you are using XStudio to control a DCS or Maestro system via our rcServer software, there are several items to check as the control connection between XStudio and the DCS or Maestro system has more components.

1. Starting at the DCS or Maestro end of the connection, first ensure that serial remote control is enabled and configured properly. See your DCS or Maestro documentation for details. The rcServer documentation also contains details on setting up these two systems.
2. Ensure the serial cable connecting the DCS or Maestro unit to the rcServer software PC is correctly wired (null-modem configuration) and connected to the correct COM ports on both ends.
3. Check your rcServer configuration to be sure you have the correct COM port selected and that the TCP/IP port settings are matched with those of XStudio.
4. Ensure that rcServer is running.
5. If both applications, XStudio and rcServer, are running on the same PC and rcServer is running but XStudio cannot connect, it may indicate that another application has control of the default TCP/IP ports the applications use to communicate. You can modify the default ports by opening Preferences and selecting the Audio Properties tab. The ports can be changed in the Host Audio Engine Connection section.


If you change the TCP/IP ports, you will also have to modify the port settings in rcServer to match the new settings in XStudio.

6. If both applications, XStudio and rcServer, are running on the same PC, open Preferences and select the Audio Properties tab. Check that the IP address in the Host Audio Engine

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Connection section is “**127.0.0.1**”. If it has been changed from the default, reenter this value.

7. If XStudio and rcServer are running on different PC’s, a firewall may be preventing communications on the ports being used. You may have to consult with your LAN administrator to determine this.

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6.4 Remote Database Problems

If you are using a centralized database server instead of the default local database, you may encounter problems with connecting to the database or encounter performance problems. This section covers the most common issues encountered.

You should also review the Using a Remote Database topic, which covers basic information on TCP/IP ports used for the remote database and the correct naming conventions for assigning a remote database server.

6.4.1 Problems Connecting to the Remote Database

If you experience difficulties connecting to the remote database you wish to maintain, it is likely that one or more of the following issues are affecting the connection.

The remote database identity is incorrect

If the remote server address was manually entered, it might not have been entered correctly. There are three distinct parts to the identity - a name, a separator (the "@" symbol), and the address. Of these, the separator and address are the key elements. For more information on creating remote database names (identities), see the topic on manually adding servers to the server list.

The database port number is incorrect

The port normally used (default port) to connect to a remote database is **16000**. However, XStudio supports user-defined port numbers for this connection, so you need to ensure the port you've assigned for the remote database connection matches the remote database server port that has been assigned.

The remote PC cannot be reached via TCP/IP

In order for XStudio to connect to a remote database server, it must be able to reach the host PC via TCP/IP.

If the server address you are trying to reach uses an IP address or internet domain name, ensure that you have a "route" to the host PC by attempting to "ping" the remote PC. Use the "address" element of the remote database server identity as the address to ping.

If the server address you're trying to reach uses a machine name notation, ensure that you can browse to the named machine (the name used in the "address" portion of the remote database identity) using Network Neighborhood or File Explorer.

Access to the remote PC is blocked

If you are certain that the remote server identity is correct and that you can reach the remote PC, ensure that both the PC running XStudio and the PC running the host application (and database server) have port **16000** available for use and unblocked. See the topic on TCP/IP Port Information for details on all ports used for database communications between XStudio and the host application.

6.4.2 Slow Database Performance

Database performance, meaning how quickly displays are updated and how long it takes to retrieve information, is generally most affected when using XStudio to access a remote database not located on your local area network (LAN).

Performance is directly affected by available bandwidth (data flow capacity) between you and the

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remote database PC. The lower the bandwidth, the more time it takes to get the data from the remote database server and the longer it takes for the display to be updated.

While there is no substitute for bandwidth, performance problems can be mitigated somewhat when working with a remote database that is not on your local area network.

The host database server normally sends requested information as it resides in the database tables, but can be instructed to "compress" the requested data before sending it to XStudio. Using compression, more data can be sent in the same bandwidth, although at the cost of the time it takes to compress the information on the server end and subsequently decompress the information at the receiver end.

Using data compression when communicating with remote database servers located on your local area network may actually reduce performance. If all host application databases you are maintaining are located on your in-house LAN, data compression is not recommended.

Implementing Data Compression

You can enable data compression in XStudio Preferences by setting the database property Data Compression.

You must exit and restart XStudio for changes in the data compression setting to take effect.

Refer to the table for an explanation of available data compression settings.

Value	***Meaning***
0	No Compression. This is the default value and means XStudio will not request compressed data from the database server.
1	Fastest Zip Compression.
2	Fast Zip Compression.
3	Fast Zip Compression.
4	Medium Zip Compression.
5	Medium Zip Compression.
6	Medium Zip Compression.
7	High Zip Compression.
8	High Zip Compression.
9	Highest Zip Compression.
10	RLE Compression.

You'll notice there are several "flavors" of zip compression, which provide a balance between speed of compression and size of the compressed data. You can experiment with various settings to see which achieves the greatest satisfaction.

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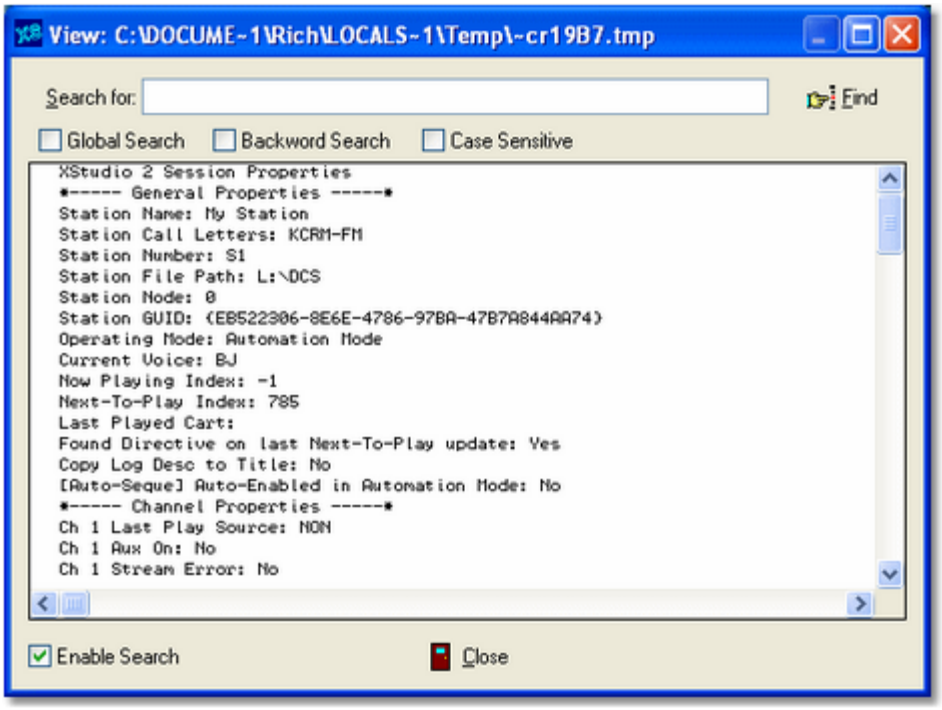
6.5 Session Properties

During operation, XStudio keeps track of a number of bits of information, called session properties, that affect program execution. Session properties include such things as the current station that XStudio is operating as, the current voice number (used in cart macros), certain preferences that might change on the fly, playback channel states, log dates and file names, active and next-to-activate log directives, and audio switcher information, including assigned input relays and lockout values.

This information can be useful for determining the cause of problems or to assist in determining XStudio's current "state."

You can view a session properties report on-screen, add the current property information to the XStudio event log, or save the property information to a file of your choosing. To review the session properties, select the main menu item **Help | Troubleshooting | Session Properties**. Then, select the menu item corresponding to what you want to do with the session properties report.

The example display shown is the result of choosing the menu option **View Session Info**.



XStudio Session Properties Report

When displayed, the report can be searched, scrolled and archived to a file if desired. It is organized in sections containing related information.

Keep in mind that a session property report reflects the "state" of XStudio at the moment the report is generated. Property values can change only milliseconds later, depending on system activity.

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6.6 Using Application Event Logs

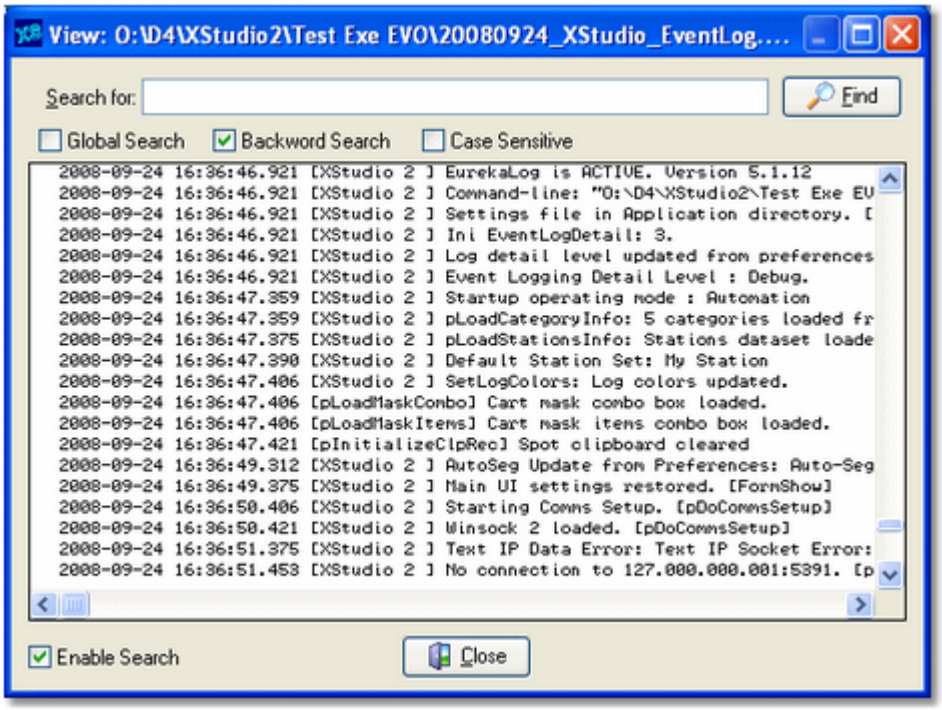
XStudio documents its actions by writing information to a set of daily event logs, which are automatically maintained for a user-specified number of days. Event logs are text files containing a time stamp for each line of information (record) and descriptive text about what happened or what was done by XStudio.

Event logs are very useful in troubleshooting problems or simply trying to determine why XStudio performed in a certain way. As a default, event logs are retained for 14 days, but you can change the number of days and the amount of detail XStudio stores in the event log. Refer to the topic on Event Logging Properties in the Configuration chapter for information on adjusting the number of days and detail level.

> Event log information is separate from and in addition to the standard audit report data that XStudio maintains for each day. Audit report data documents mainly significant activity that might be used for reconciling a log, whereas the event logs contain a lot more information about the details of operations. Event logs are stored in the XStudio application folder; the audit report files are stored in the same folder as a station's log files.

Viewing Current-Day Event Logs

You can at any time review the current-day event logs within XStudio. Select the menu item **Help | Troubleshooting | View Event Log** for the XStudio application event log or select the menu item **Help | Troubleshooting | View Inventory Manager Log** for the inventory database manager's events.


View: O:\D4\XStudio2\Test Exe EVO\20080924_XStudio_EventLog....
Search for:
Find
Global Search
Backword Search
Case Sensitive
2008-09-24 16:36:46.921 [XStudio 2] EurekaLog is ACTIVE. Version 5.1.12
2008-09-24 16:36:46.921 [XStudio 2] Command-line: "O:\D4\XStudio2\Test Exe EV
2008-09-24 16:36:46.921 [XStudio 2] Settings file in Application directory. [
2008-09-24 16:36:46.921 [XStudio 2] Ini EventLogDetail: 3.
2008-09-24 16:36:46.921 [XStudio 2] Log detail level updated from preferences
2008-09-24 16:36:46.921 [XStudio 2] Event Logging Detail Level : Debug.
2008-09-24 16:36:47.359 [XStudio 2] Startup operating mode : Automation
2008-09-24 16:36:47.359 [XStudio 2] pLoadCategoryInfo: 5 categories loaded fr
2008-09-24 16:36:47.375 [XStudio 2] pLoadStationsInfo: Stations dataset loade
2008-09-24 16:36:47.390 [XStudio 2] Default Station Set: My Station
2008-09-24 16:36:47.406 [XStudio 2] SetLogColors: Log colors updated.
2008-09-24 16:36:47.406 [pLoadMaskCombo] Cart mask combo box loaded.
2008-09-24 16:36:47.406 [pLoadMaskItems] Cart mask items combo box loaded.
2008-09-24 16:36:47.421 [pInitializeClpRec] Spot clipboard cleared
2008-09-24 16:36:49.312 [XStudio 2] AutoSeg Update from Preferences: Auto-Seg
2008-09-24 16:36:49.375 [XStudio 2] Main UI settings restored. [FormShow]
2008-09-24 16:36:50.406 [XStudio 2] Starting Comms Setup. [pDoCommsSetup]
2008-09-24 16:36:50.421 [XStudio 2] Winsock 2 loaded. [pDoCommsSetup]
2008-09-24 16:36:51.375 [XStudio 2] Text IP Data Error: Text IP Socket Error:
2008-09-24 16:36:51.453 [XStudio 2] No connection to 127.000.000.001:5391. [p
Enable Search
Close

The event log view can be resized as desired and includes search capability along with standard scrolling and keyboard navigation of the event details.

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Reviewing Event Logs Outside of XStudio

Since XStudio event logs are text files, you can use virtually any text editor or text file viewer to review the information for any of the available event log files, which are stored in the XStudio application folder using a naming conventions of:

yyyymmdd_XStudio_EventLog.txt (main application event log)
yyyymmdd_InvMgr_EventLog.txt (InvMgr event log)
yyyymmdd_InvMgr_MaintThread_EventLog.txt (InvMgr maintenance thread event log)
yyyymmdd_XEngine_EventLog.dmp (XEngine event log)

The "***yyyy***" is the year, "***mm***" is the month and "***dd***" is the day of the month for which the event log was created.

A handy alternative to using a standard text editor is our custom ***Event Log Viewer*** application, which provides enhanced features for sorting, grouping and filtering of event log data. Visit our web site for details on downloading and using this free utility.

6.7 Vista, Windows 7 & WIndows 8 Notes

With the introduction of Windows Vista and subsequently the release of Windows 7 and Windows 8 and other later operating systems, Microsoft added a significant amount of additional security to these operating systems.

Generally referred to as **UAC** (**U**ser **A**ccount **C**ontrol), the sum of these changes dramatically affect named users who might be categorized as "standard" or "general" users. Areas that previously had been quite open, allowing these users to modify, create and delete items like files and registry entries are now protected as default. Users with standard rights and privileges on these systems are now as a default prevented from making changes in such areas as the Program Files folder, the Windows folder and in the Windows registry area known as *HKEY_LOCAL_MACHINE*.

XStudio does not use the Windows registry during normal operations. The only information stored in the registry is created when installing XStudio and is used if you later decide to remove the software from the system.

In addition, Microsoft published numerous guidelines and usage information regarding these changes. Some of the guidelines would cause applications who require the end-user to be able to modify preference settings, etc., to place files in several locations on the PC. While these changes do enhance the overall security of the operating system, having files and information for a specific application spread all over the system in places not intuitive or easy to find creates a significant support burden for IT managers and the application vendor.

Over the years, we have chosen to try to keep all of our application's files, including those that store preferences, files containing run-time information like exception logging and activity detail, and small database files, in one location for ease in troubleshooting and housekeeping.

For these reasons, our applications are generally placed in a folder other than the Microsoft-recommended Program Files folder. As a default, these other folders historically have been "wide open" in the sense that any user could read, write and modify files.

However, depending on how tightly-secured a system is when running Vista or a later operating system, issues may arise that relate to user rights. The following points may assist you in locating problems with XStudio when running one of these operating systems and the user reporting issues does not have administrative privileges.

1. Make sure that user having trouble with XStudio has read, write, modify and delete privileges in the folder in which XStudio is installed. These privileges might be assigned to

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an individual user but more commonly are assigned to a user group of which the user is a member.

2. If you are placing files in a location other than the XStudio folder, file locations that are set up in the Preferences area, ensure that the named user has read, write, modify and delete privileges in that folder location.

3. One way that some issues can be overcome is to modify any XStudio shortcuts to cause the application to be run under administrator privileges. [**Right-Click**] on the shortcut and select the menu item "Run as Administrator". A negative of this approach is that the end-user will more than likely have to enter an administrative password, which defeats the concept of administrative security as you'd have to provide the user with the password.

   Another approach some people use is to disable UAC. While this action more or less returns user accounts to the sort of status they had in previous versions of Windows, this too defeats the idea of enhanced operating system security.

4. If an application uses the registry, particularly the portion known as HKEY_LOCAL_MACHINE, you may have to extend rights to specific keys that the application modifies or creates during normal usage. In order to add permissions to the registry, you will need to use **regedt32.exe**, the extended registry editor.

In order to extend additional privileges to a user or user group, either in the file system or registry, you need be be logged on to the operating system as an administrator.

apt-X™ Issues

The apt-X encoder/decoder uses a software protection scheme that can be tricky to get working under Vista and later operating systems. A hidden file is created by the software, generally placed in either the Windows directory or the root folder of the boot-up drive. Additionally, registry entries are created and maintained in several places in the Windows registry, many of which are normally restricted in in later operating systems.

When setting up XStudio, the apt-X installation, registration, etc., is done by a user with administrative privileges, so no problems occur initially. However, as soon as a user with "normal" privileges tries to use apt-X, errors occur because the underlying apt-X security system is trying to make changes in these prohibited areas.

Networking and Mapped Drives

In Windows XP and prior operating systems, it is a fairly common practice to "map" shared server drives or shared drives on other PC's to a drive letter. Mapped drive letters have been viewed as easier to work with and the network connection to the drive is persistent so long as the mapping is not removed by the user.

In Vista and up, however, the behavior is not the same. While you can map network shares and have them restored each time you log in, these operating systems ***automatically disconnect the mapping after a period of inactivity***. As a default, the disconnect occurs after 15 minutes or so. This can present problems to applications accessing data on mapped drives in these operating systems because of the amount of time it takes the operating system to reconnect after it has auto-disconnected. During the time the operating system is reconnecting, any attempt to read a file or contents of a folder are rejected and the error most commonly seen includes the words "file not found".

If you using Vista or later to run XStudio, we recommend you use UNC paths if you are accessing logs, audio files, exported music data or anything else that is located on a shared network drive.

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6.8 XStudio "Hangs" on Shutdown

Under certain circumstances, XStudio may appear to "hang" when shutting down. The main dialog will disappear and it will appear as though XStudio has closed. However, CPU utilization may reach 99% (on single processor PC's) and if you look at the "Processes" page in Task Manager, you find XStudio listed with a very high CPU value.

This problem is almost always caused by insufficient user rights in the XStudio folder. During the shutdown process, XStudio attempts to write a number of preference settings and data files and depending on the host operating system, no error message displays.

If this occurs, the only option available is to use Task Manager to end the XStudio process. Note that all information that XStudio was attempting to save on exit does not get saved.

To correct the problem, the system administrator must add the needed privileges for the user or a group the user is a member of. For more information, see the topic on AV's when starting or stopping XStudio.

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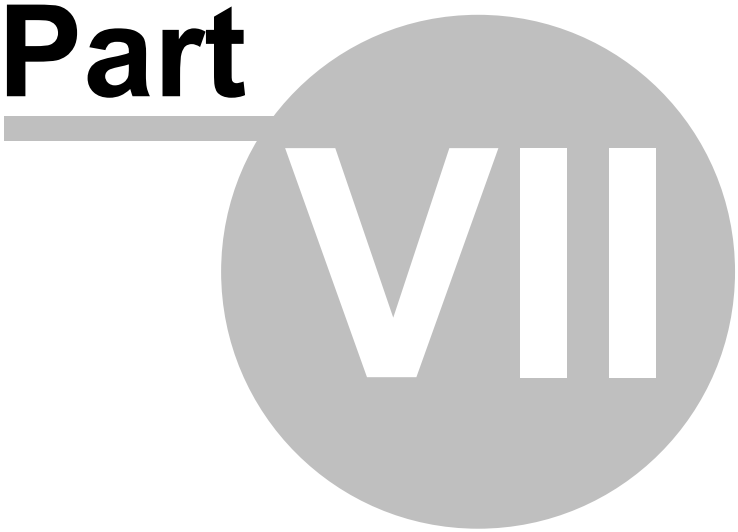
Contacting dcsTools.com



If you need to contact dcsTools.com, you can do so using one of the following methods. We are here to help, so do not hesitate to communicate with us when needed.

Mailing Address

C-R Media
8494 Saratoga Lane
Eden Prairie, MN 55347
USA

Telephone Information

Sales and Technical Support can be reached from 9:00 AM to 5:00 PM, U.S Central Time.

Voice: 952-949-9450

FAX: 952-949-9448

Email Information

To contact us via email, use our on-line contact form. If you wish to use a standard email client, send correspondence to: rich@c-rmedia.com.

Technical Support

To contact technical support for our products, use the telephone numbers or email information provided above. You can also send an on-line product-specific email.

Web Site

Visit our web site for information on product updates and other products we offer.

http://www.dcsTools.com

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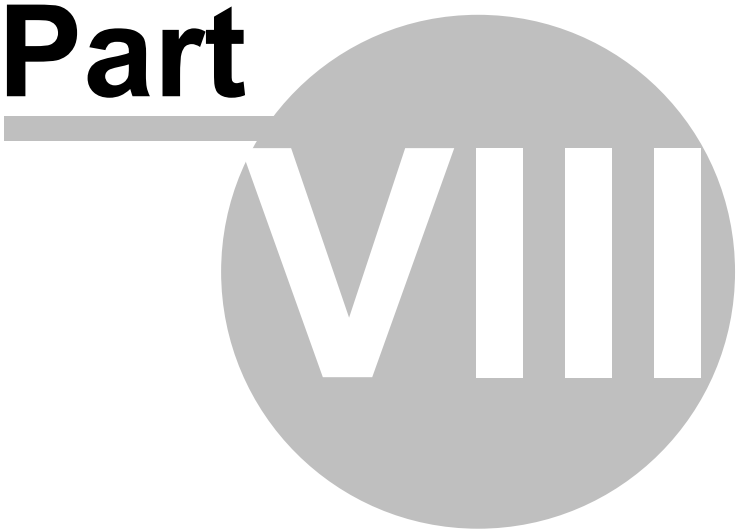
Appendices



8.1 Registration

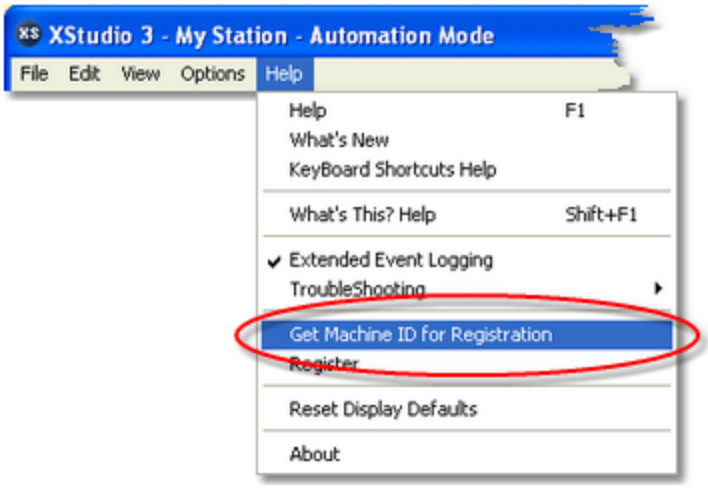
XStudio requires a valid registration code to enable full use of the product. If you have purchased XStudio, you should have received a registration code or instructions on how to obtain your registration code with your installation materials. The registration code contains the product serial number and is unique to each PC on which XStudio is installed.

If no registration code is entered or available, you will be able to run XStudio for a limited amount of time each time the program is started. Until XStudio is registered, some features and functionality that should not affect your evaluation of the product are disabled, including, but not limited to, being unable to save an edited log or print a log.

If you have purchased the optional apt-X™ decoder, you will also have to register this software, as the vendor has a separate registration process.

Preparing to Register XStudio

In order to obtain a valid registration key, the name of the host PC and a custom machine ID is required. Select the menu item **Help | Get Machine ID for Registration**.



A dialog is displayed, providing your PC's name and the ID. You can either write both down or use the [**Copy to Clipboard**] button and paste the information into an email or other document. Provide this information to your vendor to obtain the registration key.

Registration ID Code
Machine Name: VM-WINXP-D7-02
431CA062
Both Items Required
Write this ID name and value down for use in the registration process. You can also copy it to the Windows clipboard, using the "Copy to Clipboard" button.
Copy to ClipBoard
OK

XStudio Machine ID Dialog

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Registering XStudio

Register XStudio by selecting **Help | Register** from the main menu. You'll be presented with a dialog similar to the following:

XStudio Registration Dialog

Enter the company name and/or call letters in the "**Licensed To**" field. Then, enter the code you were supplied with in the "**Registration Code**" field. If you received the registration code electronically, you may use standard Windows cut and paste methods to paste the code in the field. After entering the information, click on the [**Save**] button to save the information.

After you have completed registration initially, if you redisplay this dialog, your registration specifics will be displayed in the Registration Information panel. You can also see your registration information in the About dialog from XStudio's main menu.

If you wish to change your company name and/or call letters at a later date, you will need to re-enter the registration code.

apt-X Encoder Registration (Optional Product)

If you have the apt-X encoder software installed with a product, you must register this software module separately. The encoder software is machine-specific. This software can only be registered ***after*** it's installed on the PC.

When first installed, the apt-X encoder will pop up a trial run dialog when the host application is run. The dialog includes the option to register the software. The dialog will be similar in appearance to the sample below:

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To get the registration process started, copy both the **MID** and **Site Code** information displayed on the trial dialog. You can use a mouse to select and copy each of the two codes to the Windows clipboard, if you wish, to avoid handwriting the information.

Both the **MID** and **Site Code** need to be sent to your supplier so the registration unlock code can be generated.

> **Hint** The apt-X registration dialog normally closes after several seconds if no action is taken by the user. To keep the dialog from closing while you copy down the needed information, select the "**Unlock Application**" radio button, which prevents the dialog from closing.

Soft apt-X™ Registration Step-by-Step

1. To register, select the "**Unlock Application**" radio button when the apt-X registration dialog is displayed. This stops the dialog from disappearing after a few seconds, giving you the time to write down both the **MID Code** and the **Site Code**, which appear across the top of the display.
2. When you have written down both codes, select the "**Enter Application**" radio button and click on the [**Continue**] button.
3. E-mail the Mid Code and Site Code information you've written down to your supplier, or alternatively, use our on-line product-specific contact form. To better identify your request, write "**Soft apt-X Registration**" in the Subject line of your e-mail.
4. You will receive by return e-mail the necessary **Init Code** to register the apt-X software. You will also receive a **Remove Code**, which may be needed at a later time. Be sure to keep both of these

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codes for future use.

5. When you receive the **Init Code**, launch the application that uses the apt-X software. The apt-X dialog will again appear. Select the "**Unlock Application**" radio button and enter the **Init Code** you received. Click on the [**Continue**] button. The registration information is recorded and the apt-X software is now registered.

If you decide to move the software that uses apt-X and the apt-X encoder software to another machine or substantial changes occur on the PC running with the apt-X software, the apt-X registration will have to transferred or updated. In order to do so, you will need the **Remove Code**. Be sure you have saved both the **Init Code** and the **Remove Code** in a safe place!

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8.2 System Backup and Restore

As XStudio is running, a significant number of database tables, preference and settings files are being created, updated and maintained. These files contain the key elements of your system setup and operating information. As such, a total loss of some or all of the files - as might occur if the host PC fails - can leave you with the formidable task of rebuilding your system configuration manually.

To help prevent having to rebuild the system from scratch, XStudio has a task (System Backup) that can be executed on a manual or scheduled basis (just like any other XStudio task). The backup operation occurs in the background and does not affect XStudio operations.

When executed, the XStudio system database tables are backed up to a target location defined in the task. Optionally, XStudio preference and settings files, including hot button configuration files, can be backed up. The task also has a option to zip the backed-up files to save disk storage space.

Setting Up a System Backup

Setting up a system backup is fairly simple. There are just a few basic steps:

1. Create a System Backup task. A key property of the task is the Backup Target Folder - the location where backed-up files will be placed. The files could be located on the XStudio PC, but a better choice might be a server on your local area network (LAN). That way, if the XStudio PC fails, you will still have access to the backup files.
2. Create an XStudio Action that contains the System Backup task.
3. Determine when and how you want the backup Action to execute. To have the backup execute on a regularly-scheduled basis, you could create a Scheduled Event and decide what day(s) of the week and time to perform the backup. Typically, a good time to do a backup is sometime overnight like 3:20 AM. If you are located in a time zone that uses Daylight Savings Time, avoid the 1:00 AM to 3:00 AM time period to prevent either doubling up or skipping of a scheduled backup.

   You can perform a backup on-demand by assigning the backup Action to a hot button.

What is Backed Up?

When a system backup is performed, XStudio system database files are always backed up. For additional information on the database tables that are backed up, see the Database Reference topic.

Audio inventory database files are not backed up when doing a system backup. The audio inventory database is automatically maintained by XStudio and will be rebuilt automatically if needed.

If the "backup non-database system files option" is enabled, the following file types are backed up from the ***XStudio application folder only***:

1. Preference files. These files have a file extension of "**.ini**" and include the main XStudio preferences file (XStudio.ini), which contains your registration information, and the audio engine preferences file. For details on information contained in the XStudio.ini file, see the topic Preferences File Documentation.
2. Settings files. These files have a file extension of "**.dat**" and include music dialog settings and Cart Wall settings.
3. Log display and cart mask configuration files you may have saved. These files have a file extension of "**.?cf**".

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4. Hot button file sets. These files have a file extension of "**.btn**".
5. Exported station information files. These files have a file extension of "**.stns**".

Refer to the List of Files topic for details on specific file names in this group of file types.

When backing up non-database systems files, only those files located in the XStudio application folder are backed up. For instance, if you have placed hot button files in another location, they will not be backed up.

Restoring Backed-Up Files

Restoring backed-up XStudio system database and/or settings files is a manual process. XStudio must not be running at the time you restore any of the backed-up files or your restoration of files will fail. In most cases, when restoring backed-up files you will be overwriting an existing XStudio file of the same name.

To restore some or all of the backed-up files, locate the folder in which the backup data is stored. If your backup was configured for daily backups, you may have as many as seven (7) sets of backup files, one for each day of the week. The daily backup sets are located in individual folders under the base backup folder. If you have multiple backups, you will need to decide which group of files to use, typically the most recent.

Backup files may have been zipped to a single file as part of the backup task (if so configured). You need to have a utility to unzip the backup. Recent Windows operating systems typically have support for zip files built-in, but you may wish to use another utility if you have a preference. If the backup you wish to use is zipped, you should unzip the files to a temporary location as an initial step.

Backup files are grouped together without regard to the folder location they originated from and fall into two (2) categories; a) database files, and b) preference and settings files. Database files will always be present in a backup while the preference and settings files are optionally included when you create the System Backup task. The two groups of files are handled differently in the restore process, as outlined in the following sections.

Restoring System Database Files

System database files all have a file extension of "**.nx1**". As a general rule, database files should be restored as a complete set of files as most files are tables that are related to one another (a relational database). Further, XStudio will fail to operate correctly if a partial set of database files is present at launch of the program. See the Database Reference topic for a list of the files that make up the system database.

Restoring the database files is a matter of copying all of them to the XStudio system database folder. Typically, this is a folder named "**Data**" located under the XStudio application folder. During the copy process, it is likely you will be overwriting files that already exist in the folder, replacing the contents with the backed-up content.

There are two (2) database files that can be restored individually if needed. They are "**Music.nx1**" (the imported music database) and "**LogData.nx1**" (an archive of log snapshots and log changes). These tables are not related to any other tables in the system database and can thus be safely restored individually if needed.

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Restoring Preference and Settings Files

All backed-up preference and settings files originated from the XStudio application folder and must be restored to that same folder. The application folder is determined by the user during the installation of XStudio.

Backed-up preference and settings files are not interrelated, so you can selectively restore these files depending on your needs. See the section on what is backed up for information on each of the file types that are a part of this group.

Using a Backup to Clone XStudio

If you are in the process of installing XStudio in multiple control rooms or are adding another XStudio to your operation, you may wish to use an XStudio backup to speed up the process of setup. This might be desirable if you have created a large number of Tasks and Actions and want to do the same things in another XStudio installation. The steps to take are as follows:

1. Install and launch XStudio on your new control room PC. At first launch, XStudio will automatically create a new system database. Initially, all database tables are empty.
2. Close down XStudio.
3. Copy all but two (2) of the backup system database files to your new installation's "**Data**" folder. The files to exclude are "**Music.nx1**" and "**LogData.nx1**". The effect of this step is to have all defined Tasks, Actions, scheduled events and audio switcher definitions from the backup now a part of the new system. You skip the two files mentioned because it's likely you'd be using different music for the new system and you'd want the archive of log snapshots and changes to be empty to start.
4. Optionally, copy selected preference and settings files to the new installation's application folder. Refer to to the what is backed up section for information on which files you might want to use.
5. Restart XStudio, register the software and complete the system setup.

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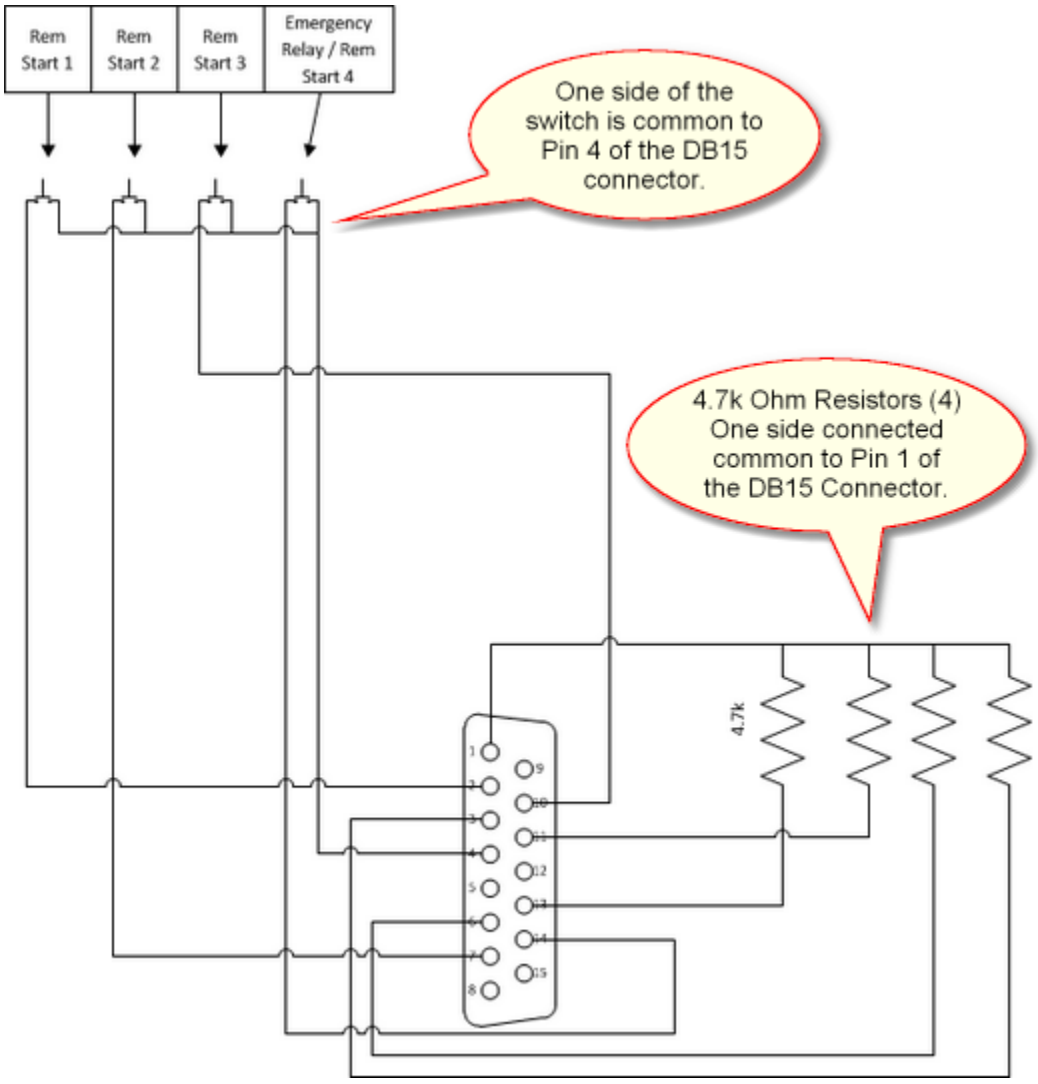
8.3 Remote Start Interface

If you wish to use the remote starts feature of XStudio, you need to have an available game port (joystick port) on the PC on which XStudio is running. Furthermore, you will need to wire a connector using the diagram provided here. XStudio uses the associated buttons 1, 2, 3 and optionally, 4, to remote start carts in its respective cart decks (Deck 1, Deck 2, Deck 3, Deck 4). The push buttons used could be either a console remote start or a custom-made set of normally open push buttons.

Button 4 can be used for triggering an action that executes in case of an emergency (the default) or for Deck 4 remote start. The button 4 usage is determined in Preferences.


Rem Start 1
Rem Start 2
Rem Start 3
Emergency Relay / Rem Start 4
One side of the switch is common to Pin 4 of the DB15 connector.
4.7k Ohm Resistors (4) One side connected common to Pin 1 of the DB15 Connector.
4.7k

Set Game Port to 2-axis, 4 button

You need to be sure that the game port on the XStudio PC is enabled and set to **2-axis**, **4-button** operation. You may need to install the joystick port driver.

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8.4 Companion Programs & Utilities

In addition to the core functionality for audio playback that XStudio provides, there are a number of separate software programs and utilities available for use with XStudio. These programs offer functionality that may or may not be required by a particular station operation; thus they are made available separately so a station can pick and choose only the additions that are needed.

Available software is listed alphabetically along with a brief description of functionality and usage. Complete information on these programs is available at our web site.

Product/Utility	***Description/Usage***
crWebBB	A web billboard posting and RDS/RBDS message encoder. It is used to generate song title and artist information, along with optional custom messages, for use in posting "What's Playing Now" information to the web or transmitting that information to an RDS encoder.
dcsTools Utility Pack	Free utility programs for review and analysis of XStudio and other dcsTools products' event log files, along with an ini file editor.
ezSuite, ezAudit, ezEdit	These programs provide log creation and editing along with audit reporting and log reconcile, depending on the specific product. It might be desirable to be able to edit a log at a user's desktop rather than in-studio, for instance. Audit reporting is useful in determining what actually happened during a broadcast day.
iDAF	A utility for analyzing and reporting audio inventory information.
LogMerge	A utility for merging (combining) separate traffic and music logs generated by most popular radio traffic and music scheduling systems. LogMerge includes instructions on setting up source log exports for most popular music scheduling and traffic systems.
rcServer	A utility that converts serial remote control data from a DCS or Maestro system to TCP/IP for use when XStudio is controlling the DCS or Maestro.
XChange	A desktop file conversion utility that converts .WAV, .MP2 and .MP3 audio files to .DAF files for use with XStudio.
XStudio Admin	A free utility for maintaining the automation database remotely.
XPlay	A desktop .DAF audio player suitable for use in auditioning audio for customers or internal use.
XStudio Recorder	An auto-recorder used to capture program content for use with XStudio, DCS™ and Maestro™ systems. Automatic recordings can be initiated by a relay received from the program service or they can be scheduled using XStudio Recorder's built-in event scheduling system.
XStudio Voice Tracker	A utility for creating "voice tracks" for automated programming. Features either rehearsed or cold tracking for multiple stations. Can be used locally or from a remote site.

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8.5 Using XStudio with DCS or Maestro

XStudio can be used to control a host DCS or Maestro system via these products' serial remote control interface. The effect of such a configuration is that the DCS or Maestro unit becomes the XStudio audio engine, replacing the use of the standard XEngine audio engine.

XStudio uses TCP/IP to communicate with the host audio engine and both DCS and Maestro use serial data. To convert TCP/IP to serial and vice versa, dcsTools' rcServer is used. rcServer essentially converts the data both ways and once installed and set up, the process is transparent to both XStudio and the host DCS or Maestro. Visit our web site for more information on rcServer.

When you are using a DCS or Maestro as the host audio engine, playback channel 1 on the host unit will be used for log playback and channels 2 and 3 map to the DCS or Maestro channels of the same number, as applicable. Note that not all DCS and Maestro units have three discrete audio channels available. If the host unit has just two, only Decks 1 and 2 will be functional.

For instructions on configuring the DCS or Maestro serial port for remote control, refer to the product documentation or to the rcServer documentation, which also explains how to set these systems up for remote control.

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8.6 List of Files

When XStudio is installed, a number of files are placed on your computer. As XStudio is used, other files are generated, as outlined in this topic.

Long file names are word-wrapped to a second line to save space. References to folder locations on your system are abbreviated, as follows:

Abbreviation		Folder Location
AppDir	=	The application folder where XStudio was installed.
LogDir	=	A given station's source log folder.

XStudio Core Files

These are the files that are placed on your system when XStudio is installed, listed alphabetically.

File Name	***Location***	***Description***
_XStudio_Default_Log_ Display_Colors.lcf	*AppDir*	A file containing the default color combinations used for non-audio log item display. This file can be imported to restore default settings. See the User Interface Settings section on Importing & Exporting Font and Color Information.
_XStudio_Sample_ CartCategories.ccf	*AppDir*	A sample file containing cart masks and color combinations. Can be used as a basis for creating your own Cart Categories.
_XStudio_Sample_Log_ Display_Properties.lcf	*AppDir*	A sample file containing an alternate color combination set for non-audio log item display. See the User Interface Settings section on Importing & Exporting Font and Color Information.
aptX100.dll	*AppDir*	apt-X decoding module. Installed only if apt-X option is selected.
mmmpeg32.dll	*AppDir*	MPEG decoding module.
pcgw32.dll	*AppDir*	apt-X decoding support module. Installed only if apt-X option is selected.
XEngine.cnt	*AppDir*	The XEngine help contents file.
XEngine.exe	*AppDir*	The XEngine program.
XEngine.hlp	*AppDir*	The XEngine help file.
XStudio.chm	*AppDir*	The XStudio help file.
XStudio.exe	*AppDir*	The XStudio program.

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Files Created by XStudio

These files are created and maintained by XStudio as a part of daily operations or as a result of updates to the software.

File Name	***Location***	***Description***
_Pending_AR.dat	*AppDir*	A data file containing pending audit records. This file is created when XStudio is closed and there are items that have not yet completed playback.
yyyymmdd_InvMgr_EventLog.txt	*AppDir*	Daily Inventory Manager event log file. As a default, a rolling 14 days are retained. See the topic on Using Application Event Logs for additional information.
yyyymmdd_InvMgr_MaintThread _EventLog.txt		Daily Inventory Manager maintenance thread event file. As a default, a rolling 14 days are retained. See the topic on Using Application Event Logs for additional information.
yyyymmdd_XEngine_EventLog. dmp	*AppDir*	Daily XEngine event log file. As a default, a rolling 14 days are retained. See the topic on Using Application Event Logs for additional information.
yyyymmdd_XStudio_ EventLog.Txt	*AppDir*	Daily XStudio event log file. As a default, a rolling 14 days are retained. See the topic on Using Application Event Logs for additional information.
Backup_ **yyyy-mm-dd-hh-mm-ss**	*FOLDER*	During a software update, folders with this naming convention may be created. The folders contain backups of all files prior to the update, including files in folders located under the main installation directory. In most cases, the user is prompted whether or not to backup before proceeding with an update.
cminvXS.dat	*AppDir*	If XStudio is automatically generating its own inventory information, this file contains the inventory data.
dxMusicSearchSettings.dat	*AppDir*	Music Search Dialog settings file.
MusicImport_EventLog.Txt	*AppDir*	If music data (song title and artist) is imported into XStudio, this file contains information on the import status, including records that failed to import.
XEngine.ini	*AppDir*	The XEngine preferences file. Settings are automatically maintained by XStudio.
xsBtnBarSettings.dat	*AppDir*	Cart Wall dialog settings file.
xsHotButtons.btn	*AppDir*	The default Cart Wall button file.

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File Name	***Location***	***Description***
XStudio.ini	*AppDir*	The XStudio preferences file.
Database Files		
Actions.nx1	*AppDir*\Data	The Actions table.
Events.nx1	*AppDir*\Data	The Scheduled Events table.
ExtDevices.nx1	*AppDir*\Data	The external devices (audio switcher) table.
LogData.nx1	*AppDir*\Data	The Log Data table containing log snapshot and splice information.
Music.nx1	*AppDir*\Data	The Music table containing song title and artist information.
nxTrans.cfg	*AppDir*\Data	A database transaction tracking file.
Tasks.nx1	*AppDir*\Data	The Tasks table.
WrkStns.nx1	*AppDir*\Data	The Work Stations table.
xsSysData.nx1	*AppDir*\Data	System Data table.
SQL**xxxx**.nx1	*AppDir*\InvData	Inventory Database SQL system files.
InvData.nx1	*AppDir*\InvData	Inventory Database audio inventory table.
SysData.nx1	*AppDir*\InvData	Inventory Database System Data table.
Audit/Log Files		
mmddyy*xx*.adt	*LogDir*	Audit data files, one for each log date for each station. XStudio automatically creates and maintains these files. The file naming convention matches the log file name for the date with the exception that the extension is .ADT.
mmddyy*xx*.log	*LogDir*	Log (program schedule) files. These files may be created using XStudio, but are generally created by another application. See the Generic Log File Specification topic for details on file naming conventions and file structure.
Hot Button File Sets		
*.btn	*AppDir*	User-defined hot button sets (files) for use with Cart Wall.
Miscellaneous Files		
*.ccf	*AppDir*	**C**art **C**ategory **F**iles. Files with this extension are created when a user exports cart categories from Preferences.
*.lcf	*AppDir*	**L**og **C**olor **F**iles. Files with this extension are created when a user exports log colors and font information from Preferences.

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File Name	***Location***	***Description***
*.stns	*AppDir*	Station info files. Files with this extension are created when a user exports station information from Preferences.

Some XStudio installations include additional documentation files. These files are typically PDF files and are placed in the application folder. Additional documentation files may include an on-disk Operations Manual and Quick Start Guide.

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8.7 Preferences File Documentation

XStudio application settings are stored in a file named **XStudio.ini**, a Windows ini file. The settings are maintained automatically. However, should you for some reason need to make manual changes to XStudio settings, you can open the settings file using Notepad or some other editor that works with standard text files or is especially used for Windows ini files.

The following information documents XStudio ini file sections and parameters (Key/Value pairs). Refer to the Ini File Structure section for information on ini file structures in general. Sections and property names are listed alphabetically but typically will not appear in the file in the order listed.

[AdminUI] Section

Property	***Description***
FormState	Automation Setup dialog form state.
Height	Height of the Automation Setup dialog.
Left	The left side position of the Automation Setup dialog.
MonitorNum	The target monitor number on which the Automation Setup dialog is displayed.
Top	The top position of the Automation Setup dialog.
Width	The width of the Automation Setup dialog.

[AudioPrefs] Section

Property	***Description***
AutoSegue	The state of the [Auto] button when XStudio is exited. When restarted, the state at exit is restored but may be overridden based on other saved settings.
Deck2LogEnable	Determines at startup whether Deck 2 uses the log or audio clipboard as a playback source.
Deck3LogEnable	Determines at startup whether Deck 3 uses the log or audio clipboard as a playback source.
Deck4LogEnable	Determines at startup whether Deck 4 uses the log or audio clipboard as a playback source.
PlayThruDirectives	Determines whether XStudio will play through Directives on a log or stop automatic sequencing when a Directive is encountered. This setting may be overridden based on other saved settings.
QueueWidth	The display width, in pixels, of the audio clipboard.
ShowDayTabs	Determines whether the Today and Tomorrow tabs are visible to enable toggling between the log for today's date and the log for tomorrow's date.
ShowDeck2	Determines whether playback deck 2 is visible.
ShowDeck3	Determines whether playback deck 3 is visible.

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Property	Description
ShowDeck4	Determines whether playback deck 4 is visible.
ShowQueue2	Determines whether the audio clipboard is visible.
WrapLog	Determines whether or not XStudio will replay the current log if the end of the log is reached. This setting is overridden based on the current operating mode.

[Bxxx] Sections

These sections contain configuration information for hot buttons. There is a section for each button, with the ***xxx*** indicating the button number.

Property	Description
ActionID	The id number of an action if the button is assigned to execute an Action.
ActionType	If a button is assigned to execute an Action, determines whether the type of action is an XStudio Action or a DCS/ Maestro function.
BGColor	The button's displayed background color.
Caption	The text that appears on the button.
CartNo	The text of the cart number to play or function name to execute.
FGColor	The button's text color.
IsFunction	Determines whether the button is a playback assignment or Action execution.
PlayChannel	If the button is assigned to play an audio cart, designates the playback channel.

[BLF] Section

This section contains information regarding the opening and saving of binary log files. Binary versions of the on-air log can be opened and saved to disk in the Automation Setup | Log Data area. See the topic covering the Log Status Dialog for additional information.

Property	Description
LastOpenFolder	Stores the last folder location from which a binary log file was opened.
LastSaveFolder	Stores the last folder location to which a binary log file was saved.

[Cart Masks] Section

This section contains the specifics on defined Cart Categories, which are used in displayed log colors and for filtering cart numbers (audio files).

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Property	Description
Count	The number of defined cart categories
BkColor***xx***	The background color that will used on the log for carts matching the category.
Color***xx***	The text color that will be used on the log for carts matching the category.
Masks***xx***	A comma-separated list of cart masks that comprise the category.
Name***xx***	The user-assigned name of the category. The name is used to identify the category when displayed in drop-down lists.

[ClockDlg] Section

This section contains settings associated with the XStudio clock dialog, including size, position and colors.

Property	Description
BackTimeShow	Determines whether or not the back-time status information will be displayed.
BackTimeTextSize	The font size of the back-time status text.
BGColor	The background color for the clock.
Left	The left side position of the clock on-screen.
MilTime	Determines whether the time is displayed as military time (24-hour clock) or standard AM/PM time (12-hour clock).
MonitorNum	The monitor number on which the clock was last displayed.
ShowClock	If True, the clock is displayed on-screen.
TextColor	The text color for the time display.
TextSize	The font size of the displayed time.
Top	The top position of the clock on-screen.

[Colors] Section

This section contains settings for the background and text colors of non-audio log items and display font settings for the log. Also included are display colors for inventory list items for expired and future-dated carts. These properties are maintained in Preferences | User Interface.

Property	Description
DirectiveBG	Background color of Directive log items.
DirectiveFG	Text color of Directive log items.
ExpBG	Background color of expired carts in inventory lists.

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Property	Description
ExpFG	Text color of expired carts in inventory lists.
FutBG	Background color of future-dated carts in inventory lists.
FutFG	Text color of future-dated carts in inventory lists.
LogFontBold	If True, ***all*** text on the log is displayed as **bold**.
LogFontName	The name of the font used in the log display.
LogFontSize	The log text size.
LogNoteBG	Background color of Log Note log items.
LogNoteFG	Text color of Log Note log items.
ProbCartBG	Background color of "problem cart" log items - items missing or out-of-date.
ProbCartBold	If True, all "problem carts" are displayed in **bold** text.
ProbCartFG	Text color of "problem cart" log items - items missing or out-of-date.
ProgTitleBG	Background color of Program Title log items.
ProgTitleFG	Text color of Log Note log items.

[CountDownClock01] Section

This section contains settings associated with the XStudio intro countdown timer dialog, including position and behavior.

Property	Description
Enabled	If True, the intro countdown clock is used where applicable.
HideInactive	If True, the intro countdown clock is displayed only when in use, actively counting down an intro time. All other times, it is hidden.
Left	The left side position of the intro countdown clock on-screen.
MonitorNum	The monitor number on which the intro countdown clock was last displayed.
TextSize	The font size of the displayed countdown time.
Top	The top position of the countdown clock on-screen.
wasVisible	If True, the intro countdown timer was visible when XStudio was last closed and will be restored that way when XStudio is next started.

[Database] Section

This section contains database parameters, including whether the database is local or remote and access properties. These properties are maintained in Preferences | General.

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Property	***Description***
AllowRemoteConnections	If True, a local database can be administered remotely.
ClientDataCompression	If the database is remote, this value determines the level of data compression used when communicating with the remote database server.
DefRemSrvrPassword	The password, if required, used to login to a remote database server. The password value is encrypted.
DefRemSrvrUserName	The user name, if required, used to login to a remote database server.
DefRemoteServer	The name and IP address of the default remote server, if applicable.
DefRemoteServerCompression	Data compression setting for the default remote server. The default is no compression.
DefRemoteServerPort	The port number to use when connecting to the default remote server.
DefRemSrvrIsSecure	If True, the default remote server is using a secure (data scrambled) TCP connection.
DefRemSrvrSecureKey	If DefRemSrvrIsSecure (above) is True, this key contains the security key required to make a secured connection. The key value is encrypted.
LocalDBPath	Fully-qualified path to the local database, if applicable.
LocalServerName	A user-assigned name to the local database server within XStudio. It is used to identify a XStudio installation.
LocalServerPort	If AllowRemoteConnections is True, the port number on which to allow remote connections.
TempStoragePath	Fully-qualified path for temporary storage used by the XStudio built-in database engine.
UseRemoteServer	If True, XStudio will attempt to connect to a remote database server at startup, beginning with the default server designated in this section.

[DBServerList] Section

If multiple remote database servers are defined, this section contains a list of the defined servers. These properties are maintained via Database Server List Maintenance.

Property	***Description***
RemSrvrCompression_***xx***	Data compression setting for the remote server. The default is no compression.
RemSrvrIsSecure_***xx***	True if the server uses a secure (scrambled) TCP connection.
RemSrvrPassword_***xx***	The remote server password, if required. This value is encrypted.

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Property	Description
RemSrvrSecureKey_*xx*	The remote server security key, if applicable. This value is encrypted.
RemSrvrUserName_*xx*	The remote server user name, if required.
RemoteServer_*xx*	The remote server name and IP address.
RemoteServerPort_*xx*	The remote server port number.
ServerCount	The count of defined remote servers.

[dxMusicSearchDlg_MRU] Section

This section contains properties associated with the most recent searches conducted in the Music Search Dialog.

Property	Description
Count	The number recent searches recorded.
ST_*xx*	The search text used.

[dxMusicSearchDlg_UI] Section

This section contains properties associated with the Music Search Dialog. Additional properties relating to the display grid, such as column order and width, are stored in a separate file. See the List of Files topic for the associated file name.

Property	Description
BackwardSearch	If True, searches are in reverse (before current record). Default is False.
FieldIdx	The index of the column last used for searches.
Height	The height of the Music Search Dialog.
Left	The left-edge position of the Music Search Dialog (in pixels).
MonitorNum	The monitor number on which the Music Search Dialog is displayed.
SearchAnyWhere	If True, music searches look for matching data anywhere in the field. If False, searches look for matching characters at the beginning of the field.
SearchText	The text last used for a search.
Top	The top-edge position of the Music Search Dialog.
Width	The width (in pixels) of the Music Search Dialog.

[ExternalControl] Section

This section contains properties associated with the external control port. See the section on setting

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up External Control Port properties for additional information.

Property	Description
BaudRate	The COM port baud rate for the external control port.
COMPort	The COM port number used for external control.
Enabled	If True, the external control COM port is opened and available for use by Tasks that send data via this port.

[FileViewDlg] Section

A number of text file viewing dialogs use the properties in this section. Examples include the application event log, source traffic log viewer and current system properties viewer. The properties control how searches are executed within the viewer.

Property	Description
CaseSensitive	If True, searches are case-sensitive.
GlobalSearch	If True, searches are global instead of beginning from the current cursor position.
SearchBackwards	If True, searches work backwards from the current cursor position.
SearchStr	The last text used for a search.
ShowSearch	If True, the viewer's built-in search controls are displayed.

[General] Section

This section contains general XStudio settings and properties, including registration information.

Property	Description
AudioSwitcher	The unique ID number of XStudio's assigned audio switcher. The value is zero if a switcher is not assigned.
AudioSwitcherName	The user-entered audio switcher description.
AutoSegueAutoEnable	If True, when a user starts playing audio from the log on channel 1, the [**Auto**] button (auto-segue button) will automatically be enabled if the user had temporarily disabled auto-segue for some reason.
DefaultMode	The default XStudio operating mode, expressed as a number.
DefaultStation	The name of the default station, if defined.
DefaultStationGUID	The unique ID of the default station, if defined.
EmergencyActionID	The unique ID number of an Action that will be used in Emergency mode as a response to triggering the "emergency relay" in XStudio, which is a part of the remote start interface. The value is zero if an Action is not

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Property	Description
	assigned.
EmergencyActionName	The user-entered name of the defined emergency Action.
EventLogDetail	The default level of detail that will be kept in the XStudio application event log, expressed as a number.
LengthCheck	When validating a log, this value determines the allowable variance between the logged length and the actual length of an audio cart.
Licensed To	The name of the person or business to whom XStudio is licensed.
LoadLogAtStartup	If True, XStudio will attempt to load the today-dated log for the defined default station.
PlayLogOnStart	If True, XStudio will begin playing the log after starting up, beginning with the element closest to current time. This setting is ignored if the startup operating mode is Satellite.
Registration	The registration key for XStudio.
SecEnb	If True, users must enter a password to access and change property settings in Preferences.
SecPwd	If security is enabled for access to Preferences, this value is the password in encrypted form.
StartupActionID	The unique ID of the Action to be performed at system startup, if assigned. The value is zero if an Action is not assigned.
StartupActionName	The user-assigned name of the Action that is performed at startup, if assigned.
StartAudioEngine	If True, XStudio will check to see if XEngine is running at start-up. If not, XStudio will attempt to start XEngine.

[HotButtonDialog]

This section contains settings for the XStudio Cart Wall and hot buttons, including default button colors and default playback deck.

Property	Description
ButtonFile	The current default button configuration file. This file will be loaded at program startup, if applicable.
Default_Btn_BG_Color	The default hot button background color.
Default_Btn_FG_Color	The default hot button foreground (text) color.
Default_Deck	The default playback deck for hot buttons. This value is used whenever a button is being set up and was previously not configured.
Enabled	If True, the Cart Wall dialog is initialized at system startup

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Property	***Description***
	and is displayed or hidden based on user preference.
Height	The height of the XStudio Cart Wall window.
Last_Btn_BG_Color	The last background color used when configuring a hot button, if different from the default background color.
Last_Btn_FG_Color	The last foreground (text) color used when configuring a hot button, if different from the default foreground color.
LastFolder	The last folder used to open a hot button configuration file.
Left	The left-edge position of the Cart Wall window.
MonitorNum	The monitor number on which the Cart Wall dialog is displayed. This value is saved when XStudio is closed and restored the next time it is launched.
Top	The top-edge position of the Cart Wall window.
wasVisible	If True, the Cart Wall was visible when XStudio was last closed and will be restored that way when XStudio is next started.
Width	The width (in pixels) of the Cart Wall window.

[HotButtonMRU]

This section contains a list of the most-recently-used hot button configuration files.

Property	***Description***
Count	The count of recently-used button files contained in this section.
MRU***xx***	The fully-qualified path and file name of a recently-used hot button configuration file.

[InvMgrDatabase]

This section contains properties for the Inventory Manager Database.

Property	***Description***
AllowRemoteConnections	If True, InvMgr-aware applications can utilize data contained in the Inventory Manager Database.
LocalServerName	If remote connections to the Inventory Manager Database are allowed, the name by which the database will be identified.
LocalServerPort	The port number that InvMgr-aware applications will user to connect to the database.

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[LogSearchDlg] Section

This section controls default or last-used properties for searching the log.

Property	***Description***
Type	The last search type performed (cart number or description), expressed as a number.

[LogSearchMRU] Section

This section contains property settings for the search dialog used when reviewing log snapshots.

Property	***Description***
BackwardSearch	If True, searches will proceed backwards from the current log item.
Count	The count of the number of most-recently-used search items.
FieldIdx	The field index of the column most recently searched.
LookFor	The current search text
ST***xx***	Recently used search text.
SearchAnywhere	If True, the searched text can be anywhere in the field. If False, a match is looked for only at the beginning of the field.

[MainTableColMap] and [TomorrowTableColMap] Sections

These sections contain the display column order and widths for the current and next-day logs. See the topic on Changing Log Appearance for more information.

Property	***Description***
Count	The number of columns displayed on the log.
CC***xx***	The caption for the column
CH***xx***	If True, the column is hidden from the user's view.
CN***xx***	The unique column ID, which identifies the what is displayed in the column.
CW***xx***	The width of the column, in pixels.

[MainUI] Section

This section contains properties that control the size, location and appearance of the XStudio main display.

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Property	***Description***
CopyLogDescToTitle	If True, the contents of the Description field of non-music items on the log are copied to the Title field in order to enable hiding the standard Description field.
CopyInvDescToLogDesc	If True, the Description field of non-music items on the log use the matching cart's inventory description instead of the original log record's description.
CopyInvLenToLogLen	If True, the Length field on the uses the matching cart's inventory AuxMark length instead of the original log value.
Height	The height of the XStudio main display.
HoursFontSize	The font size of the contents of the Hour Totals list on the main display.
HoursSplit	The location of the splitter between the Hour Totals/Hot Buttons controls and the log. This value determines the width of the controls.
InvDblClick	If True, [**Double-Click**] on an inventory list item causes immediate playback.
InvFontName	The name of the font used in the main inventory list.
InvFontSize	The main inventory list text size.
InvSortCol	The index of the field last used for sorting the inventory list.
InvView	The name of the last-used inventory view.
Left	The left-edge position of the main display.
MainSplit	The location of the splitter between the log and inventory list. This setting determines the relative size of each control.
MonitorNum	The monitor number on which XStudio is to run. This value is saved when XStudio is closed and restored the next time it is launched.
NBLeftPage	This value represents whether the Hour Totals or Hot Buttons are selected and visible to the user.
ShowAMPMTime	If True, log times are displayed in AM/PM format.
ShowCartStatus	If True, out-of-date and missing carts are highlighted on the log.
ShowInventory	If True, the inventory list is visible. If False, the list is hidden.
ShowSpotTimes	Determines the type of spot (cart) time value that is displayed. See the section on changing the log appearance for details.
ShowToolBar	If True, the main display tool bar is displayed. If False, it is hidden.
State	The state of the main display when last closed (normal, maximized).

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Property	Description
Top	The top-edge position of the main display.
Width	The width (in pixels) of the main display.

[MusicData] Section

This section contains information relating to music database import and export. See the topic on Music Data for more information.

Property	Description
AutoUpdateAppendRecords	If True, when automatically updating music data, the source data is appended to existing data. The effect is records in the database but not in the new source data file are retained, changed records are updated, and new records are added to the database.
AutoUpdateEnabled	If True, automatic updates to the music database occur.
AutoUpdateFileName	The fully-qualified name of the source music data file to be used for automatic music database updates.
AutoUpdateImportType	The source music data type used in automatic music data updates.
AutoUpdateProperCaseMusic	If True, when the music database has been automatically updated, the database is scanned and song title and artist fields are converted to "proper-case". This option is used when source music data information is all upper-case, for instance.
LastCMRExportFolder	The last folder used to export music data (song title & artist) in dcsTools Generic Format (*.CMR).
LastCSVExportFolder	The last folder used to export music data (song title & artist) in comma-separated values (*.CSV) format.
LastImpFolder	The last folder used to import music data.
LastImpType	The last music data import type.
LastMusicDataUpdate	The date and time of the last music database update, expressed as Real number. This value is updated when music is imported manually, automatically or the user edits database records.
LastMusicSourceFileDate	The date and time stamp of the source music data file last processed in an automatic update. The value is expressed as a Real number.

[OpenDlg] Section

This section contains properties relating to Open Log dialog.

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Property	Description
EnableDoubleClick	If True, [**Double-Click**] on a calendar date opens the log for that date, if present.

[Params] Section

This section contains system parameters and properties relating to audio file handling and inventory generation. These properties are maintained in Preferences | Audio Properties.

Property	Description
AppLogMaxDays	The number of days to retain XStudio daily application event logs.
AudioBuffers	The number of audio buffers the audio engine uses during operation. The default is 30.
CopyCMInvFileTo	A copy of the locally-generated XStudio inventory file is made to this location, if present.
DCSAudioDir	The primary folder location of audio files.
DCSAudioDir2	The optional secondary (or backup) location of audio files.
DefSiteNames	A comma-separated list of node names used in identifying cart (audio file) distribution.
EnforceCartDates	If True, XStudio will not play out-of-date audio.
FadeRate	When Music Fade is enabled, the rate of fade. Valid values are 100 to 32000. Default is 1000. The higher the value, the faster content is faded.
FileScanInterval	The interval, in seconds, between checks XStudio makes to see if there have been audio file changes when the primary audio folder is a network drive.
GenLocalInv	If True, XStudio generates and maintains its own audio inventory list.
InvCopyNodes	A comma-separated list of node numbers to include when making a copy of the local inventory to another location. This setting is for future use and not presently used.
LocalInvNodes	A comma-separated list of node numbers to be included when generating an inventory list for use within XStudio. This has the effect of reducing the items displayed to the end-user.
MasterDACGain	The audio engine master gain. Default value is zero (0). Allowable range is -60 to +6.
MusicCarts	A comma-separated list of cart masks that comprise the "Music" cart category. Matching carts (audio files) are faded at Aux Mark if Music Fade is enabled.
OutPutDevName	The Windows device name of the primary playback channel (1) for Deck 1.

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Property	Description
OutPutDevName2	The Windows device name of playback channel 2 (Deck 2).
OutPutDevName3	The Windows device name of playback channel 3 (Deck 3).
OutPutDevName4	The Windows device name of playback channel 4 (Deck 4).
OutPutDevice	The Windows device number of the primary playback channel (channel 1) for Deck 1.
OutPutDevice2	The Windows device number for playback channel 2 (Deck 2).
OutPutDevice3	The Windows device number for playback channel 3 (Deck 3).
OutPutDevice4	The Windows device number for playback channel 4 (Deck 4).
ShowTimeToAuxMark	If True, remaining airplay times are displayed relative to the Aux Mark instead of the end of audio. When enabled, the countdown reaches zero on deck displays at the Aux Mark. The default is False.
SilenceTrim	When True, any silence at the beginning of PCM audio files is trimmed during playback.
UseFunctionCarts	If True, an Action embedded in a cart is executed at playback.
UseMusicFade	If True, all carts (audio items) matching the "Music" cart category are faded at the Aux Mark.

[RemoteStart] Section

This section contains properties that control the XStudio remote start functionality. These properties are maintained in Preferences | Audio Properties.

Property	Description
Enabled	If True, remote starts are enabled for playback decks and the emergency action relay. The the Remote Start Interface topic for details on setting up the hardware for remote starts.
RSBtn4Usage	Stores the assignment of Button 4 of the Remote Start Interface. 0 = Emergency Relay, 1 = Remote Start for Deck 4.
RSDebounce	Duration, in milliseconds, that will be used in determining whether to process a remote start button-press. Prevents "double-firing".
RSInterval	The remote start polling frequency, in milliseconds.
SuppressRemoteStart	When True, if the playback deck for which the remote start was pressed is already playing audio and the deck playback source is the log, the remote start will be suppressed (ignored). Valid for Live Mode only.

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[Stations] Section

This section contains information for Stations defined for program execution in XStudio. Station information is maintained in Preferences | Stations.

Property	***Description***
Count	The number of defined stations.
InvFile_***xx***	If an external audio inventory file is used for a station, this entry contains the fully-qualified path and file name.
LogPath_***xx***	The folder location of program logs for the defined station.
StnGUID_***xx***	The unique ID of the defined station.
StnID_***xx***	The call letters of the defined station.
StnName_***xx***	The user-assigned station name. The name is presented in selection lists where a station needs to be selected.
StnNo_***xx***	The program log station number for the defined station. Typically would be a value like "S1".
UseInv_***xx***	If True, an external inventory file is used for the XStudio inventory display. This property is automatically overridden if the Generate and Use Local Inventory property is set True.

[SwitcherStatusDlg] Section

This section contains properties that control whether or not the audio switcher status window is displayed and if so, it's on-screen location.

Property	***Description***
Left	The left-edge location of the audio switcher dialog.
MonitorNum	The monitor on which the audio switcher dialog was last displayed.
ShowAtStart	If True, the audio switcher status window is displayed when XStudio starts.
Top	The top-edge location of the audio switcher dialog.

[TCPIP] Section

This section contains properties used in communicating with the XEngine audio engine. These properties are maintained in Preferences | Audio Properties.

Property	***Description***
EventLogging	If True, a separate event log is generated and maintained for communications activities between XStudio and XEngine.
IPAddress	The IP address of the audio engine (XEngine). If located on

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Property	Description
	the same PC as XStudio, the address is **127.0.0.1**.
ListenPort	The TCP/IP port is used for control and response communications with the audio server engine (XEngine).
UserName	A user-assigned name that identifies XStudio to the host audio engine.
XfrPort	A TCP/IP port reserved for transferring file data between XStudio and XEngine and is not presently used. It is for future expansion.

[ValidateCCCLog] Section

This section contains general properties for Log Validation.

Property	Description
Height	The height of the Log Validation window.
Width	The width of the Log Validation window.

[ValidateColumns.*xxxxx*] Sections

These sections contain column widths for each of the Log Validation "views".

Property	Description
1..8	The width of the numbered column.

[xsInv.*xxxxx*] Sections

These sections contain the column widths for each of the main display inventory "views".

Property	Description
0..6	The width of the numbered column.

[xsLogGridExport] Section

This section contains properties about performed logs exported from the Log Status dialog.

Property	Description
ExcelExpandGroups	Determines whether or log data exported to the Excel format includes hidden grouped information.
ExcelSaveAll	Determines whether all or just selected log records are exported to Excel format.
HTMLExpandGroups	Determines whether or log data exported to the HTML format includes hidden grouped information.

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Property	Description
HTMLSaveAll	Determines whether all or just selected log records are exported to HTML format.
LastExcelFile	The path and file name of the last file exported to the Excel format.
LastHTMLFile	The path and file name of the last file exported to the HTML format.
LastTextFile	The path and file name of the last file exported to the Text format.
LastXMLFile	The path and file name of the last file exported to the XML format.
TextExpandGroups	Determines whether or log data exported to the Text format includes hidden grouped information.
TextSaveAll	Determines whether all or just selected log records are exported to Text format.
XMLExpandGroups	Determines whether or log data exported to the XML format includes hidden grouped information.
XMLSaveAll	Determines whether all or just selected log records are exported to XML format.

[xsMessageBannerI] Section

This section contains properties associated with the XStudio Message Center.

Property	Description
AutoHideOnExpire	If True, the XStudio Message Center automatically hides when a message expires.
ClientHeight	The height of the Message Center dialog.
ClientWidth	The width (in pixels) of the Message Center dialog.
Left	The left-edge position of the Message Center dialog (in pixels).
MonitorNum	The monitor number on which the Message Center dialog is displayed.
Top	The top-edge position of the Message Center dialog.

Ini File Structure Information

For those who might be unfamiliar with the INI file origins and structure, this sections covers some basics of what INI files are and how they are constructed.

Note: Portions from Wikipedia, the free encyclopedia.

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Definition

An initialization file, or INI file, is a configuration file that contains configuration data for Microsoft Windows based applications.

Starting with Windows 95, the INI file format was superseded but not entirely replaced by a registry database in Microsoft operating systems. Recently, XML became a popular choice for encoding configuration, as well as other kinds of data for many applications, but INI format is still in widespread use.

Although made popular by Windows, INI files can be used on any system thanks to its flexibility. It allows a program to store configuration data, which can then be easily parsed and changed.

File Format

A typical INI file might look like this:

```
[Section1]
; some comment on section1
var1=abc
var2=451
[Section2]
; another comment
var1=123
var2=dfg
```

Format Elements

The elements of the INI file format:

- **Sections**: Section declarations start with '**[**' and end with '**]**' as in [Section1] and [Section2] above.
- **Parameters**: The "var1 = abc" above is an example of a parameter. Parameters are made up of a **key** ('var1'), equals sign ('**=**'), and a **value** ('abc'). For this reason, they are also known as key/value pairs or simply items.
- **Comments**: All the lines starting with a semicolon ('**;**') are assumed to be comments, and are ignored.

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8.8 Generic Log File Specification

The Generic Log File Specification documents the file naming convention and record structure for logs created for use with XStudio.

This specification was originally published by Computer Concepts Corporation, Lenexa, KS in 1989 and updated to version 1.5 in October 1991. The specification was released to all interested parties, including traffic system vendors and music scheduling system vendors.

This document (the one you are reading) is referred to as:

dcsTools Generic Log File Specification Version 1.6 (Updated 6/28/2010)

It updates and corrects errors in version 1.5 of the specification published by Computer Concepts Corporation.

Log File Structure

The Generic Log File is made up of 69-byte records terminated with a Carriage Return (byte 68) and Line Feed (byte 69).

The first record in the file is an informational record (ID Record) not displayed in XStudio.

All other records include a time field of 4 characters representing military time in hours and minutes, on which the file is sorted. In addition, Commercial Records contain a seconds value field. The time field, including the seconds value field where applicable, must be a unique value for each record, in the range of 00:00:00 to 23:59:59. The log has a maximum of 86,400 records, based on unique time values with one-second resolution.

The original Computer Concepts specification document indicated that the maximum number of records for a log file is **1441**. While this number is correct when considering the number of minutes in a day (1440) plus one ID Record, in reality the actual maximum number of records is 86,400 when you consider Commercial Records that contain a seconds value.

Each log file represents one (1) day of programming, 24 hours in length, beginning at midnight and finishing at 11:59:59 PM.

It is not required that a log file contain content for all hours of the day (i.e. records with time fields starting at midnight and ending at 11:59 PM), but the log must not contain content for more than one day. As an example, if the station for which the log is prepared operates between 5 AM and 8 PM only, it is perfectly acceptable that the log file contains content for those hours only.

A typical log, viewed in a standard text editor, might look similar to the example fragment:

```
I           WXST-FM
D0000LR00300                  Load Required Brk
C0000:01T004DIET COKE/Q:Diet Coke!    00059CM
C0000:02T010VERNE & BUBBA'S DONUT     00049CM
C0000:03T110DoubleTree                00058CM
D0020LR00400                  Load Required Brk
C0020:01T118Get Well Games            00059CM
C0020:02T120DENTYNE/reg or sugarfree  00029CM
```

Additional information regarding what the host system expects to see in the finished generic log is contained in the topic Generic Log Construction Guidelines.

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Log File Name

Log files are named in such a way as to provide for one unique file for each day of each year for each station. This allows usage of a single file folder location for all stations in a multi-station environment.

Log file names have the form **MMDDYYxx.LOG**, where:

MM = Month (01-12)

DD = Day (01-31)

YY = Year (00-99)

xx = Station Number (any 2 characters in 0..9, A..Z)

.LOG = The log file extension

Generic Record Type

All records have a record type value in byte 1 of the record. Bytes 2-67 will vary in format, depending on the record type. All records terminate with a Carriage Return/Line Feed combination in bytes 68 and 69.

Bytes	***Len***	***Description***	***Possible Values***
01	1	Record Type	**B** = Blank Line **C** = Commercial **D** = Directive **I** = ID Record **L** = Log Note **P** = Program Title
02-67	66	< Format depends on record type >	
68-69	2	CR/LF	Carriage Return/Line Feed
Total	69		

Record Type Conventions

All record types defined are presented in tabular form and include the byte positions for each field, length of each field, a description of the field and possible values for the field. Here are the conventions used in documenting record types:

- All fields in a record are fixed-length. If the field is not completely filled with information, it must be padded with space characters (Decimal 32, Hex 20) to the full length of the field to ensure correct byte alignment. Unless otherwise noted, all fields are left-justified.
- In the possible values column, text marked in **BOLD** are acceptable field vales; all other text is descriptive in nature.
- The terms *Blanks* and *Blank* are used in the possible values column to identify fields or reserved areas of the record that are to be populated with the space character (Decimal 32, Hex 20).

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Original versions of Computer Concepts Corporation documentation specified some fields should be "padded with nulls," meaning using the null character (Decimal 0, Hex 00) to fill unused byte positions at the end of the field. Over time, the accepted method became filling the unused byte positions with the space character (Decimal 32, Hex 20).

- The term *Freeform* is used in the possible values column to indicate that the field value can be standard text of your choosing (i.e. freeform) up to the maximum length of the field.
- Some fields in the Commercial Record are noted in the possible values column as ***Filled in by system*** or ***<Not Used>***. These fields should be output filled with blanks (Decimal 32, Hex 20).

8.8.1 ID Record Type

One and only one (1) ID Record must be placed as the first record in a log file.

Bytes	***Len***	***Description***	***Possible Values***
01	1	Record Type	**I** = ID Record
02-12	11	<Reserved>	Blanks
13-19	7	Station ID	**XXXX-XM**
20-67	48	<Reserved>	Blanks
68-69	2	CR/LF	Carriage Return/Line Feed
Total	69		

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8.8.2 Commercial Record Type

The commercial record type is used to identify audio items that appear on the log.

Bytes	*Len*	*Description*	*Possible Values*
01	1	Record Type	**C** = Commercial
02-05	4	Time in HHMM format	**0000 - 2359**
06-08	3	Seconds in :SS format	**:00 - :59** (see Guidelines for additional info)
09-12	4	Cart Number	4 alphanumeric characters
13-36	24	Log Description	Freeform
37-38	2	Commercial Play Priority	Freeform
39-43	5	Length in MMMSS	**00000 - 99959** (Right-Justified)
44-47	4	Commercial Type	Has evolved to freeform. Original suggested types include: **AGR** - Agriculture **CM** - Commercial **EDIT** - Editorial **EDUC** - Educational **E** - Entertainment **I** - Instructional **N** - News **O** - Other **PA** - Public Affairs **POL** - Political **PRO** - Promotional **PSA** - Public Service Ann. **R** - Religious **S** - Sports
48-53	6	Customer Number	Freeform
54	1	Position Flag	**F** = 1st in break **L** = Last in break Blank = not fixed
55	1	Make Good Flag	***<Not Used>***
56-59	4	Product Code	Freeform
60-67	8	Time Aired	***<Not Used>***
68-69	2	CR/LF	Carriage Return/Line Feed
Total	69		

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8.8.3 Directive Record Type

The directive record type is used to communicate special directions to XStudio, hence the term "directive". There are six (6) specific directives, each with its own record format.

Base Directive Record Type

The first 7 bytes of a directive record are formatted in three (3) fields, as shown. The remaining 62 bytes differ based on the value of the Directive Type field (bytes 6 & 7).

Bytes	***Len***	***Description***	***Possible Values***
01	1	Record Type	**D** = Directive
02-05	4	Time in HHMM format	**0000 - 2359**
06-07	2	Directive Type	**CR** - Close Relay **LW** - Load Window **LP** - Load Play Stopset **LR** - Load Required Stopset **LS** - Load Optional Stopset **PC** - Play Cart
08-67	60	Directive Type dependent	*See individual directive types*
68-69	2	CR/LF	Carriage Return/Line Feed
Total	69		

Close Relay Directive

This type of directive is used to execute an XStudio Action.

Bytes	***Len***	***Description***	***Possible Values***
01	1	Record Type	**D** = Directive
02-05	4	Time in HHMM format	**0000 - 2359**
06-07	2	Directive Type	**CR** - Close Relay
08-11	4	Relay Number	**0001-9999**
12-31	20	<Reserved>	Blanks
32-61	30	Description	Freeform
62-67	6	<Reserved>	Blanks
68-69	2	CR/LF	Carriage Return/Line Feed
Total	69		

Load Window Directive

This directive is used to update the XStudio Current Voice session property.

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Bytes	*Len*	*Description*	*Possible Values*
01	1	Record Type	**D** = Directive
02-05	4	Time in HHMM format	**0000 - 2359**
06-07	2	Directive Type	**LW** - Load Window
08-11	4	Relay Number	**99** (Current Voice)
12-31	20	<Reserved>	Blanks
32-61	30	Description	Freeform
62-67	6	<Reserved>	Blanks
68-69	2	CR/LF	Carriage Return/Line Feed
Total	69		

Load Stopset Directive

These directive types are the most commonly used of the directives. They are used to mark break positions and duration. Note there are three (3) types, all with the same record format.

Bytes	*Len*	*Description*	*Possible Values*
01	1	Record Type	**D** = Directive
02-05	4	Time in HHMM format	**0000 - 2359**
06-07	2	Directive Type	**LP** - Load Play Stopset **LR** - Load Required Stopset **LS** - Load Optional Stopset
08-12	5	Length in MMMSS	**00000 - 99959** (Right-Justified)
13-31	19	<Reserved>	Blanks
32-60	29	Description	Freeform
61-67	7	<Reserved>	Blanks
68-69	2	CR/LF	Carriage Return/Line Feed
Total	69		

Play Cart Directive

This directive is used to place an audio item in the log that is not normally scheduled by a music or traffic system.

Bytes	*Len*	*Description*	*Possible Values*
01	1	Record Type	**D** = Directive
02-05	4	Time in HHMM format	**0000 - 2359**

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Bytes	*Len*	*Description*	*Possible Values*
06-07	2	Directive Type	**PC** - Play Cart
08-12	5	Length in MMMSS	**00000 - 99959** (Right-Justified)
13-16	4	Cart Number	4 alphanumeric characters
17-20	4	Commercial Type	*Same as Commercial Record*
21-27	7	<Reserved>	Blanks
28-31	4	Product Code	Freeform
32-60	29	Description	Freeform
61-66	6	Customer Number	Freeform
67	1	<Reserved>	Blank
68-69	2	CR/LF	Carriage Return/Line Feed
Total	69		

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8.8.4 Program Title Record Type

The program title record type is used to identify programs on the log.

Bytes	*Len*	*Description*	*Possible Values*
01	1	Record Type	P = Program Title
02-05	4	Time in HHMM format	**0000 - 2359**
06-36	31	Description	Freeform
37-41	5	Length in MMMSS	**00000 - 99959** (Right-Justified)
42-43	2	<Reserved>	Blanks
44-47	4	Program Title Type	*Same as Commercial Record Commercial Type*
48-67	20	<Reserved>	Blanks
68-69	2	CR/LF	Carriage Return/Line Feed
Total	69		

8.8.5 Log Note Record Type

As the name implies, the log note record type is used for placing notes on the log.

Bytes	*Len*	*Description*	*Possible Values*
01	1	Record Type	P = Program Title
02-05	4	Time in HHMM format	**0000 - 2359**
06-29	24	Log Note	Freeform
30-67	38	<Reserved>	Blanks
68-69	2	CR/LF	Carriage Return/Line Feed
Total	69		

8.8.6 Blank Record Type

The blank record type was not originally documented by Computer Concepts Corporation. It has been used, though, since the early 1990's.

Bytes	*Len*	*Description*	*Possible Values*
01	1	Record Type	**B** = Blank Line
02-67	67	<Reserved>	Blanks
68-69	2	CR/LF	Carriage Return/Line Feed
Total	69		

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8.8.7 Generic Log Construction Guidelines

In order for the generic log to be properly executed by the host audio system, certain guidelines need to be followed in constructing and/or exporting the log. This topic provides basic guidelines intended to ensure that the generic log executes properly on the host system.

The original specification published by Computer Concepts Corporation, Lenexa, KS, did not include log construction guidelines. This content is provided to minimize pitfalls that might be encountered in constructing and/or exporting a generic log for use by the host audio system.

Each Log Must Contain an ID Record

The ***first record*** in the generic log file must be an informational record (ID Record) in order to be considered valid. If the ID Record is not present, the log will not be processed by the host audio system.

Audio Items (Spots, Music etc) Must be "Anchored"

When loading the generic log, the host audio system uses non-audio log records as anchor points for the the audio items. Typically, a Directive record type is used, but Program Title and Log Note records can also be used. The host system groups the audio items following the anchor as a sequence based on the anchor item's time value. Consider the following fragment of a generic log file:

```
...
D0020LR00400                    Load Required Brk <== "Anchor Point"
C0020:01T118Get Well Games            00059CM
C0020:02T120DENTYNE/reg or sugarfree  00029CM
D0100LR00300                    Load Required Brk <== "Anchor Point"
C0100:01T004DIET COKE/Q:Diet Coke!    00059CM
C0100:02T010VERNE & BUBBA'S DONUT     00049CM
C0100:03T110DoubleTree                00058CM
...
```

As you can see in the fragment, a Directive is scheduled at 00:20 (12:20 AM). The following audio items (commercials in this case) have the same starting times in terms of hour and minute (12:20 AM) and contain a seconds value. The two commercials in the example are "anchored" to the Directive. The next grouping is at 01:00 (1:00 AM). The host system typically creates "spacing" so the visual representation of the log appears similar to an original paper log document.

This concept of anchoring is particularly important if the host system is running satellite automation. The Directive "anchors" have the effect of grouping the breaks (stopsets) for playback when the programming service signals a local breakaway.

In live programming segments, using one of the record types that serves as a content anchor assists in making the log visualization on the host system easier to use.

Audio Items (Spots, Music etc) Must be Written in One-Second Increments

While it may be counterintuitive, audio items following an anchor item in the generic log need to be incremented by one second for each item following the Directive, Program Title or Log Note. The main reason for this requirement is to maximize the number of elements a log contains.

Since the generic log structure uses the time values as unique record identifiers, incrementing by one second increases the number of records that can be contained within the generic log substantially. Review the generic log file fragment to see how this construction appears in the file:

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```
...
D0020LR00400                    Load Required Brk <== "Anchor Point"
C0020:01T118Get Well Games             00059CM    <== Item incremented 1 second
C0020:02T120DENTYNE/reg or sugarfree   00029CM    <== Item incremented 1 second
C0020:03T010VERNE & BUBBA'S DONUT      00049CM... <== Item incremented 1 second
...
```

Simply passing a traffic or music scheduling system "log time" through to the generic log file is the most common pitfall encountered when constructing and/or exporting a log. If the log times are not adjusted and properly incremented, the results on the host audio system are unpredictable.

XStudio compensates for this problem when opening a log by automatically adjusting the times to meet the log file specification. If there is a problem making the adjustments, XStudio will warn the end-user of the problems.

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8.9 Audit File Specification

The Generic Audit File Specification documents the file naming convention and record structure for audit data files created by XStudio.

This specification was originally published by Computer Concepts Corporation, Lenexa, KS in 1989 and updated to version 1.6 in October 1992. The specification was released to all interested parties, including traffic system vendors and music scheduling system vendors.

This document (the one you are reading) is referred to as:

dcsTools Audit File Specification Version 1.7 (Updated 12/17/2012)

It updates version 1.6 of the specification published by Computer Concepts Corporation, including later additions to audit transaction types and status codes, along with items unique to dcsTools products.

Audit File Name

Audit files are named in such a way as to provide for one unique file for each day of each year for each station. This allows usage of a single file folder location all stations in a multi-station environment.

Audit file names have the form **MMDDYYxx.ADT**, where:

MM = Month (01-12)

DD = Day (01-31)

YY = Year (00-99)

xx = Station Number (any 2 characters in 0..9, A..Z)

.ADT = The audit file extension

Audit File Structure

The audit file data is stored in binary format as a group of records. Each record has a fixed length segment followed by a fixed number of variable length fields.

Where possible, descriptive names that match the originally-published specification have been retained. New types added use naming conventions similar to the original documentation.

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8.9.1 Fixed Length Segment

The fixed length segment of an audit record includes information about when the event occurred, the type of event, the length of the event, and status of the event. The table describes the structure and field usage.

Field	*Data Type (C)*	*Description*
eventTime	time_t	The time the event occurred. "time_t" is Microsoft's C compiler v6.0A definition of the number of seconds since 00:00:00 January 1, 1970. It is a 4-byte signed integer.
txnType	auditTxnTypeEtyp	An enumerated type that describes the type of transaction. See the topic Transaction Types for details.
logTime	time_t	If applicable, the log time of the event. Otherwise, the value will be zero. "time_t" is Microsoft's C compiler v6.0A definition of the number of seconds since 00:00:00 January 1, 1970. It is a 4-byte signed integer.
length	long	The event length in centiseconds. A length of 30.05 seconds is expressed as 3005. If the event has no applicable length, the value will be zero.
status	audtTxnStatEtyp	An enumerated type that describes the status of the transaction. See the the topic Status Types for details.
seqNum	Byte	If the event relates to the play of a multi-cut cart, this field contains the cut rotation sequence number. Otherwise, the value will be zero.

The eventTime and logTime field values are stored by the audio delivery system based on the Pacific Time Zone. When calculating the actual event time and log time, the actual time zone in which the record was created by the audio delivery system needs to be taken into account in order to arrive at the correct date and time value.

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8.9.1.1 Transaction Types

The transaction type variable is an enumerated type. Transaction type codes describe the type of activity the audio delivery system is engaged in or the base type of a problem the system encountered.

Enumerated Transaction Type	Displayed Transaction Code (Action)	Meaning
AUDIT_PLAY	PlayCart	A cart (audio file) is played.
LOAD_WINDOW	LdRelayQ	A "relay queue" is being loaded. This differs from the standard "queue" and happens as the result of a function (action) executing.
LOAD_STOP_SET_REQ	LdRqdBrk	A Required Break is loaded into the queue.
LOAD_STOP_SET	LdBreak	An Optional Break is loaded into the queue.
CANCEL_Q_ELEMENT	DelFromQ	Items were deleted from the "queue".
AUDIT_RECORD	RcrdCart	A cart (audio file) is being recorded.
FILLER_SELECTION	FillCart	A fill cart is played as an automated function. These occur when DCS or Maestro automatically adds content to a break in Satellite mode, most typically.
SILENCE_INSERTED	Silence	Silence has been inserted to "spread" a break of a specified length.
SET_AUTO_ON	AutoOn	Automation mode has been turned on.
SET_AUTO_OFF	Auto Off	Automation mode has been turned off.
RELAY_EVENT	RelayOn	A relay was turned on by XStudio, DCS or Maestro.
REMOTE_PLAY	RmtPlay	A cart is played via remote control.
REMOTE_QUEUE	RmtQ	The queue has been activated/ deactivated via remote control.
REMOTE_HALT	RmtHalt	A playing cart has been halted via remote control.
EOMB	EOMBegin	The End-of-Message is beginning. Corresponds to the Aux mark on a cart.
EOME	EOMEnd	The End-of-Message is complete. Corresponds to the end of the cart.
MSG_XMIT_TO_SW	PcToSw	Communications from the XStudio, DCS or Maestro unit to an audio switcher.
MSG_RCV_FROM_SW	SwToPc	Communications from an audio switcher to the XStudio, DCS or Maestro unit.

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Enumerated Transaction Type	Displayed Transaction Code (Action)	Meaning
DCS_STARTED	DCSBegin	DCS or Maestro is starting up.
DCS_EXITED	DCSEnd	DCS or Maestro closed.
TT_DATE_FRAME	DateErr	A date error has occurred.
TT_NEW_CFG	cfgChngd	The DCS or Maestro configuration has been changed.
dcsTools-Specific		
TT_LOG_CHANGE	LogChngd*	A change has occurred in the broadcast log. The log was manually-edited in XStudio or updated automatically as a result of the source log changing.

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8.9.1.2 Status Types

The status type variable is an enumerated type. Status codes provide documentation of what happened with a particular transaction initiated by the audio delivery system, generally reporting either success of the system action or the reason for failure of the action.

Enumerated Status Type	Displayed Status Code	Meaning
TXN_STARTED	TXN_STARTED	An action has started that may have several components who's action results are unknown at the start of the sequence.
COMPLETED	ok	The action completed successfully.
NOT_COMPLETED	NOT_COMPLETED	The action was not completed.
CANCELLED	CANCELED	The action was canceled - typically, this would refer to the playing of a cart.
IGNORED	IGNORED	The action was ignored. This status code is most often associated with an audio switcher input relay.
TIMED_OUT	TIMED_OUT	The action could not be completed in the allocated time.
TS_DATE_CONFLICT	Date Conflict	A cart could not be queued or played because it was out-of-date for the date the action was attempted.
BREAK_MISSED	Break Missed	Typically seen when items on the log are queued but not played before the next log directive clears them from the queue. Most often seen when running in satellite mode of operation.
TS_MANUAL_FORCE	ManuallyForced	A cart was not valid for the date, but was forced to the play line or queue by the operator.
TS_REC_FAIL_CH_IN_USE	FailRecChInUse	A recording failed because the record channel was already in use.
TS_REC_FAIL_MALLOC_ERR	FailMallocErr	The action failed because of a memory allocation error. Most often seen with DCS units.

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Enumerated Status Type	Displayed Status Code	Meaning
TS_REC_FAIL_CART_ON_PLINE	FailCartOnPLin	The action, usually a recording, failed because the cart was on a play line at the time the action was attempted.
TS_REC_FAIL_CART_IN_QUE	FailCartInQue	The action, usually a recording, failed because the cart was in the queue at the time the action was requested.
TS_REC_FAIL_CART_EXISTS	FailCartExists	The action failed because the cart already exists. Typically, this is seen when a recording is to be made and the recording function has been set to NOT overwrite the cart if it already exists.
TS_REC_FAIL_DISK_FULL	Fail Disk Full	The action failed because the target hard was full. Typically, this code appears when a recording is being made and the system runs out of hard disk space.
TS_REC_AUTO_START	RecAutoStarted	A recording action has started with AutoStart option set.
TS_REC_START_NOW	RecStartedNow	A recording actually began at the time indicated. An record action with AutoStart might have been "armed" several seconds (or even minutes) ago, but this is the time the recording actually began.
TS_REC_APTX_NA	Rec Aptx N/A	A recording action failed because the data reduction method for the recording was apt-X and apt-X data reduction was not available on the DCS or Maestro unit attempting the recording.
TS_REC_MANUAL_STOP	RecManualStop	A recording was manually stopped.
TS_REC_AUTO_STOP	RecAutoStop	A recording was automatically stopped based on a maximum recording length.
TS_REC_RELAY_STOP	RecRelayStop	A recording was stopped

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Enumerated Status Type	Displayed Status Code	Meaning
		based on an input relay received.
TS_REC_FAIL_BAD_CARTNUM	FailBadCartNum	The action failed because of a bad cart number.
TS_PAUSED	Play Paused	A cart play was paused.
TS_REC_PAUSED	RecPaused	A recording was paused.
TS_REC_RESUMED	RecResumed	A recording was resumed from a paused state.
TS_REC_REMOTE_STOP	RecRemoteStop	A recording was stopped by remote control, using Computer Concepts' published control protocol.
TS_REC_MPEG_NA	Rec MPEG N/A	A recording action failed because the data reduction method for the recording was ISO-MPEG and ISO-MPEG data reduction was not available on the DCS or Maestro unit attempting the recording.
TS_REC_FAIL_NO_ACCESS	FailNoAccess	The action failed because DCS or Maestro did not have access to a required resource.
TS_REC_FAIL_CART_IN_RCW	FailCartInRCW	A recording failed because the cart was already in the recording control window.
TS_CART_MISSING	Cart Missing	An action failed because a specified cart number was missing.
dcsTools-Specific		
TS_LOG_ADD	AddLogItem*	An item was added to the active log in XStudio.
TS_LOG_DEL	DelLogItem*	An active log item was deleted within XStudio.
TS_LOG_EDIT	EditLogItem*	An active log item was edited within XStudio.
TS_LOG_SPLICE	LogSplice*	An updated log on disk was spliced into the active XStudio log.

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8.9.2 Variable Length Segment

The variable length segment of the audit record includes 6 ASCII fields delimited by a byte having a value of **0xFF** (decimal 255). The table below lists the field order and their possible lengths.

Field	*Data Type*	*Description*
cartNumber	AnsiChar [8]	The cart number field. If the transaction involves a cart (audio item), the cart number will be in this field. Otherwise, the field will be empty.
custNum	AnsiChar [7]	Customer number field. If the transaction involves a log item and a customer number was included in the log, that value appears in this field. Otherwise, the field will be empty.
description	AnsiChar [25]	Description field. If the transaction involves a cart (audio item), the description of the item appears in this field. If the transaction is of another type, text appearing in this field could be a decoded switcher message or information about an automated function or action.
agencyTapeNum	AnsiChar [16]	Agency tape number field. If the transaction involved a log item and an agency number was included in the log, that value appears in this field. Otherwise, the field would include raw switcher data for an audio switcher transaction or be empty.
swicherMsg	AnsiChar [11]	Switcher message field. If the transaction involves an audio switcher, the data in this field represents the switcher command type and result.
windowName	AnsiChar [14] (Original) AnsiChar [30] (dcsTools)	Window name field. Originally 14 characters in length, expanded to 30 for dcsTools products. If the transaction involves an automation function or action, its name appears in this field. For XStudio, if the transaction involves a log item, the unique log record ID appears in this field. Otherwise, the field is empty.

All text stored in the variable length segment of the audit record is ANSI text. This convention has been retained for compatibility across all audio delivery systems that write records described in this document.

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8.10 Revision History

This topic contains historical information on changes, enhancements and corrections to XStudio by version number and date. For the most recent changes and enhancements, see the What's New topic.

Version 3.3.2.435 - 03/27/2014

1. **Enhancement**. Preference properties for controlling the font type and size used in the main display's inventory list have been added. These settings can be changed on the User Interface tab in Preferences.
2. **Enhancement**. A new task, Banner Message, has been added along with a new floating dialog (the XStudio Message Center). This task can be used to advise operators of changes in system configuration (for a ballgame, for instance) or anything else that might be needed to get the attention of the operator.
3. **Enhancement**. A new task, System Backup, has been added. The backup operation occurs in the background and does not affect XStudio operations. When the task is executed, the XStudio system database tables are backed up to a target location defined in the task. Optionally, XStudio preference and settings files, including hot button configuration files, can be backed up. The task also has a option to zip the backed-up files to save disk storage space. See the System Backup and Restore topic in the appendices for more detailed information on setting up a system backup, what is backed up and how to restore backed-up files.
4. **Enhancement**. Station configuration information can now be exported and imported in Preferences.
5. **Enhancement**. Additional detail information is now logged to the XStudio event log when a user changes the Next-to-Play item manually via the log's pop-up menu, [**F7**] keystroke and [**Double-Click**] on a log item. The cart number and log description are now logged to help better identify which item on the log the user set as Next-to-Play.
6. **Enhancement**. The XStudio manual, supplied in PDF format, has been optimized for duplex printing.
7. **Fix**. Under certain circumstances, an error could occur some time after a user performed a [**Right-Click**] on the log to display the log's pop-up menu. This action could set up a future AV when the log was updated and the new log had fewer items than it did when the user popped up the menu. The error was handled by XStudio and did not affect operations, but was annoying. Additional checks are now made before attempting to access the log record the user [**Right-Click**ed] on to prevent this error in the future.
8. **Fix**. When starting XStudio, the comparison between the on-disk log and log snapshot time stamps were not being handled properly. This led to unneeded splicing of content from the on-disk log.

Version 3.3.0.385 - 01/22/2013

1. **Enhancement**. A new task type, Remap Input Relays, has been added. This task allows you to replace the input relay mapping for a selected audio switcher device with a completely different set of Actions assigned to available input relays. This task can also be used to restore the original "default" relay mapping for a device.
2. **Enhancement**. The Start Play task dialog has been updated to support drag and drop re-ordering of the Cart Rotation List. A Macro Help button has also been added to assist in adding cart numbers containing macro characters to the Cart Rotation List.
3. **Enhancement**. Handling of Start Play tasks that use the Cart Rotation List has been updated to fully support rotation of multiple cart numbers, including checking the inventory (if available) for

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missing and, if applicable, out-of-date carts.

4. **Enhancement**. A new Relay Queue Maintenance dialog has been added. The dialog displays all active Start Play tasks that use a Cart Rotation List. Cart rotations can be modified by adding, editing and deleting cart numbers in the rotation. The Next-to-Play property can also be modified. Changes made are active until XStudio is restarted. Users can also change the Current Voice setting manually in this dialog. See the topic on Using the XStudio Relay Queue Maintenance Dialog for more information.

5. **Enhancement**. Time-Approximate Directive handling in Satellite Mode has been implemented to support automated sports broadcasts and similar events where breaks are sequence-sensitive rather than time sensitive. The log now distinguishes between and displays the next fixed time directive (**NxtU =>**) and time-approximate directive (**NxtA =>**). Users can manually mark the next time-approximate directive to be used to handle situations where XStudio needs to be synchronized with the next network break event. An example of how to use this functionality is discussed in the Satellite Programming - Special Events topic.

6. **Enhancement**. Functionality to execute an Action at the start of playback for a specific cart has been implemented. This feature can be enabled or disabled in Preferences and is disabled as a default. For additional information, review the Embed an Action in a Cart topic.

7. **Enhancement**. At start-up, XStudio now scans the log from midnight to current time and will update the Current Voice property if any Set Voice directives are found.

8. **Enhancement**. A menu item has been added to optionally display the inventory AuxMark length in the log Length field (***View*** | ***Log Display*** | ***Use Inventory Length on Logs***). When enabled, displayed log items will have the matching cart's inventory AuxMark length value instead of the original log length value. Note this feature is ***display-only***, the underlying log is not changed.

9. **Enhancement**. An cart's (audio item's) Agency field information is now passed to the audit data file for reporting purposes.

10. **Enhancement**. You can now clear an entire page of hot buttons in the Cart Wall dialog. A toolbar button or pop-up menu item can be used to reset all hot buttons on a selected page to an unassigned state.

11. **Enhancement**. XStudio now detects Windows 8 and Windows Server 2012 operating systems and adjusts its display accordingly.

12. **Enhancement**. When an updated log is detected and is being merged (spliced) with the active log, if no matching directives are found on the active log and the new log has content at times beyond the active log's last log record, XStudio will scan the later times on the updated log and merge (splice) the new content if there is a valid directive at a later time on the updated log.

13. **Enhancement**. Documentation has been updated to include additional information about the XStudio audit data file structure. See the topic Audit File Specification for additional information.

14. **Change**. When monitoring for files that might have changed, XStudio now tracks changes based on UTC time. This approach reduces the possibility of a change incorrectly being detected in circumstances where XStudio is operating in a time zone that uses DST.

15. **Fix**. When a user attempted to register XStudio by copying and pasting the registration key into the registration dialog, the registration key would be invalid because the user inadvertently copied leading spaces instead of just the registration key text. Now, any extraneous spaces are removed when the user pastes the registration key into the dialog. Additional feedback is provided when manually entering a registration key that is not the correct length, which can occur if a character is missed in typing or if copying only a portion of the registration key and pasting it.

16. **Fix**. Saving an edited Action in the Automation Setup dialog would occasionally be done incorrectly, resulting in the wrong Action being updated. The problem could occur if the user began editing an Action and while editing, another Action was executed by XStudio. XStudio now double-

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checks to be sure the correct Action is being updated and display an error message if the update cannot be performed.

17. **Fix**. Very occasionally, when XStudio was creating a temporary file to store information for display, the temporary file was not correctly created and the information would not be displayed. The problem has been corrected.

Version 3.2.0.330 - 09/01/2012

1. **Enhancement**. A hourly content back-timer has been added, integrated with the clock display. The XStudio Backtimer is a tool to help determine how much audio content remains to be played in the current hour versus how much time is left in the hour. Comparing these values produces an "over/ under" time value that can be used as a reference in making on-the-fly adjustments. If XStudio is short of content, a negative value is displayed and if long, a positive value is displayed. See the topic About the XStudio Backtimer for more detailed information.
2. **Enhancement**. A Music Search Dialog has been added. It can be used to search the imported music database for song titles, artist names and cart numbers. A selected song can be dragged directly from the dialog to the log, any cart deck (for immediate play), the audio clipboard and hot buttons. Features include grouping by artist, incremental search, filtering of data, saving filter criteria for later use, most recent search words and more. See the topic on Using the XStudio Music Search Dialog for more information.
3. **Enhancement**. The ability to automatically update the XStudio music table has been added. When enabled, XStudio will check for changes in the source music data file and when a change is detected, automatically update the music table. When music data is first imported, the user is offered the option of enabling auto-update. Update settings can also be maintained in the Automation Setup dialog. See the topic on Configuring Music Auto-Update for more information.
4. **Enhancement**. Music Fade capability has been added. When enabled, audio items in the "Music" cart category are faded at Aux Mark by XEngine at a user-defined rate. Music Fade applies to all carts that in the "Music" category on all channels.
5. **Enhancement**. A new audio inventory manager has been introduced to replace the original inventory generation module. The XStudio Inventory Manager (InvMgr) stores data in a custom database. Performance is significantly better than previous implementations. While the initial inventory generation time (when XStudio is first started and an audio folder is assigned) is about the same as previously, subsequent updates to the inventory (adds, edits and deletes) is significantly faster. In addition, InvMgr-aware applications can connect to the inventory manager database to retrieve inventory information, if remote access is enabled in Preferences.
6. **Enhancement**. You can now choose whether the countdown of remaining air play time displayed in the playback decks is shown as the time to end-of-audio (the default) or shown as time to Aux Mark. The behavior is controlled by settings in the Audio Engine Properties area in Preferences.
7. **Enhancement**. Advanced Properties for XEngine have been added to Preferences. You can control the number of audio buffers used by XEngine, set the master gain for all audio played and enable automatic silence trim from the beginning of PCM audio files.
8. **Enhancement**. Log display times can now be shown as AM/PM times if desired. As a default, XStudio, continues to display log times in military format. To enable AM/PM time display, use the main menu item ***View | Log Display | Show Log Time as AM/PM***. When enabled, printed logs also reflect AM/PM times.
9. **Enhancement**. The Broadcast Tools ADMS 44.22 audio switcher has been added to the list of supported resources.
10. **Enhancement**. When XStudio is launched and a current-day log is not found for the default station, an emergency log, if available, is loaded. XStudio now additionally periodically checks the availability of the current-day log when using an emergency log and if the log becomes available,

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will offer to load it. As a default, if the user does not respond to the offer, the current-day log is automatically loaded and spliced with the emergency log. This new behavior occurs only in Live, Satellite and Automation modes of operation.

11. **Enhancement**. A menu item has been added to optionally display the inventory description in the log description field (***View*** | ***Log Display*** | ***Use Inventory Description on Logs***). When enabled, displayed log items will have the matching cart's inventory description instead of the original log description. If imported music data is being used, this setting is ignored for carts matching the "Music" cart category. Note this feature is ***display-only***, the underlying log is not changed. As a result, searching the log on the Description field may have unpredictable results if the log description and inventory description are completely different - i.e., characters in the search string are present in the log description but not the inventory description or vice-versa.

12. **Enhancement**. A menu item has been added for opening an emergency log (***File | Open an Emergency Log***). This option is available in all operating modes and is intended for use in a situation where no logs exist for a station, an on-air situation has developed that requires completely different content, or XStudio is being used as a backup system and the user needs a custom emergency log.

13. **Enhancement**. Displaying file open and save dialogs has been updated to correct problems with multi-monitor systems (and some newer operating systems) displaying these dialogs in the wrong position or on the wrong monitor.

14. **Enhancement**. A log pop-up menu item has been added that provides the ability to quickly jump to the log record currently selected by the user whether it's within view or not. The item is available on the current-day log (Today Log) only and displays the log description of the user-selected log record. The feature is useful in situations where XStudio has scrolled the user-selected log record out of view as a result of making sure the currently-playing item is in-view on the log display.

15. **Enhancement**. Copying of inventory files to the secondary location (if enabled) is now retried several times before notifying the user the copy has failed. If another program has locked the file that is to be replaced, multiple attempts to copy the file increase the chance of success as the file may be released by the other program while XStudiois retrying the copy operation.

16. **Enhancement**. In previous versions of XStudio, when starting and the option to load the current-day log at startup was turned off, XStudio made no attempt to load inventory information. Now, if the option to generate & use local inventory (Preferences | Audio Properties) is turned on, XStudio will load and display current inventory information.

17. **Change**. The behavior of context-sensitive help has been changed so that when [**Right-Click**] of the mouse is used, the "What's This" pop-up menu no longer appears if there is no context help available for the control over which the mouse is located. When the context button on the toolbar or menu item **Help | What's This Help** is clicked and the user subsequently clicks on a control that has no help, the message indicating there is no help available is no longer displayed. Instead, the mouse cursor simply returns to its normal shape without displaying any message.

18. **Fix**. Carts (audio items) with a length or Aux Mark value greater than ~60:15 (60 minutes, 15 seconds) were displayed as being much shorter. Long carts now display correctly.

19. **Fix**. If a user changed the log font size, the second row of the log display did not increase its height to display the text in its entirety. This occurred in both the current-day and next-day logs. The height of that specific row had been inadvertently set to a fixed height. It is now dynamic like all other rows of the log.

20. **Fix**. When in Satellite mode and late-day breaks on the current-day log were empty, XStudio would incorrectly transition to the next-day log. XStudio now correctly waits until the active break directive requires transitioning the log.

21. **Fix**. When a Load Play directive on the log was processed in Satellite mode, break boundaries were not being respected and XStudio would play content intended for the next directive. XStudio

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no longer executes the Load Play directive if the break has no audio content.

22. **Fix**. If the Preferences property to duplicate the log description to the song title field was enabled, but the music table was empty, copying did not occur. Now, the standard log description is copied to the song title field in any case if the property is enabled.
23. **Fix**. The sort order of music data in the Automation Setup dialog (sorted by cart number) was different than the order displayed in the inventory list. The sort orders are now the same.
24. **Fix**. When editing an external resource, the previously-visible selected item was not being restored to visibility properly.
25. **Fix**. When the last element of a log is a Directive, the "busy" cursor would persist when the log was loaded or edited and the last segment length of the log, the one associated with the last Directive, would not be displayed on the log. This condition has been corrected.
26. **Fix**. When using a Broadcast Tools 16x4 audio switcher, manual channel updates from the switcher status display panel were not working correctly on output rows 3 and 4. This has been corrected.
27. **Fix**. When closing XStudio, the possibility existed users might encounter an AV. This bug has been corrected.

Version 3.0.0.210 - 03/23/2011 (Initial Release of Version 3)

1. **Enhancement**. A 4th playback deck has been added. Deck 4 behaves in the same way as Decks 2 & 3. It can be hidden or shown, you can use the audio clipboard or log as a source, and it can be the be target of drag and drop operations or hot buttons. The keyboard shortcut [**Ctrl-4**] can be used to start play (see the topic on keyboard shortcuts) and you can optionally assign a remote start button (see Preferences and the topic on the Remote Start Interface).
2. **Enhancement**. The Automation Setup dialog's size, position and host monitor number (for multi-monitor systems) information is now saved on exit and the dialog's previous position, size and monitor location are restored the next time it is opened.
3. **Fix**. When playback decks 2 or 3 had more than one item playing and the 1st item finished, there was a momentary flicker on the deck.
4. **Fix**. When assigning audio channels to a playback deck in Preferences, the change was not effective unless the user moved off the selection list. Now, changes are reflected immediately.

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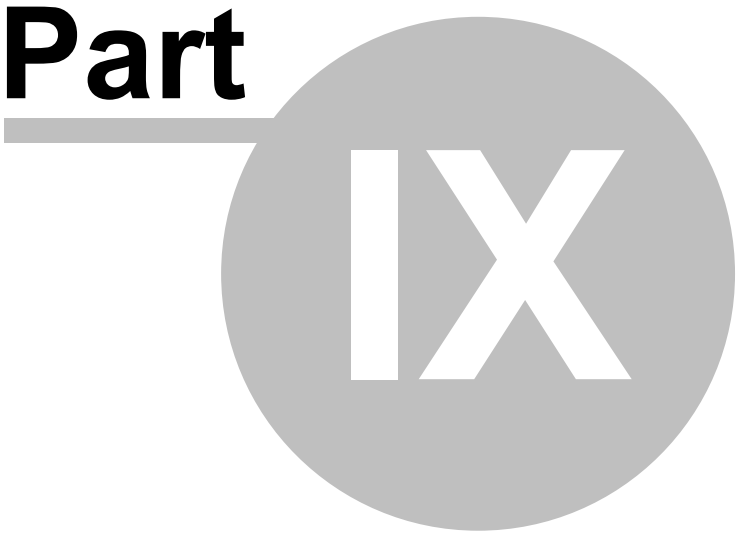
Glossary of Terms



The XStudio documentation includes some words, terms, abbreviations or perhaps industry-specific "jargon" that may not be meaningful or perfectly clear to you. The table includes entries that may need additional explanation or definition, listed alphabetically.

Term	***Meaning***
.DAF or DAF	Refers to the generic type of audio file supported by XStudio. This type of file was originally created by Computer Concepts Corporation, Lenexa, KS, and is the file name extension used by the DCS and Maestro audio systems, also created and sold by Computer Concepts. DAF files consist of a small "header" that contains a description, start and end dates for the audio, distribution information, and a digital Aux Mark among other things.
apt-X	Refers to a loss-less audio encoding (data reduction) method and one of the types of audio files supported for playback in XStudio. The apt-X name is trademarked.
Audio Clipboard	Refers to the control on the XStudio main display used for constructing a list of audio items to play on an ad hoc basis. See the topic on Using the Audio Clipboard for more information.
Auto-Segue	Also [**Auto**] button on primary playback channel. Refers to automatically sequencing audio items (carts) on the broadcast log, moving from one item to the next as Aux Mark or EOM of playing item is reached. Auto-Segue is enabled when the [**Auto**] button is down, disabled when the button is up.
Automatic Backfill	Refers to a technique of automatically adding audio content to a satellite programming break to meet the required length of the break when the scheduled content on the log sums to less time than the required length. XStudio does not offer this feature.
Aux Mark	Refers to a digital "mark" on an audio file, similar to traditional secondary tones on broadcast tape decks, either reel-to-reel and tape cartridge types. This mark is used to signal the beginning of the end of audio playback. It is used as a trigger point to begin playing another audio item, if applicable. This results in overlap of audio - the remaining portion of the audio that is finishing plus the beginning of the newly-started audio item are mixed 1-to-1 to ensure a smooth sound with no dead air.
Break	Shorthand for "commercial break" or "stopset". The term is most often used when referring to commercial content played back on-demand as part of a satellite-driven format. The term has over time been broadened to refer to a group of audio elements (carts) played in sequence, where the content might not necessarily be just commercials.
Cart	Refers to an audio file, also called an audio item. The term originated with the introduction of tape cartridge machines in radio. These cartridges, similar in appearance to 8-track tape cartridges, were referred to in shorthand as a "cart". Prior to the introduction of computer-based hard-disk audio delivery systems such as XStudio, tape cartridge machines were ubiquitous in radio stations and the

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Term	***Meaning***
	main means of playing non-music audio content to air. Usage of the term has persisted, particularly among veteran broadcasters who were active in radio during the time tape cartridge playback machines were used extensively in radio stations.
Centisecond	A unit of time equal to 0.01 seconds (hundredth of a second).
Closure	Also known as a "***Cue***". Refers to a signal, typically a contact closure, sent by satellite programming services to indicate to the station that some task needs to be performed. Services generally send a number of different "closures" or "cues" that identify which task is to be performed locally. There might be, for instance, a unique closure to signal the station to insert a local commercial break, a different closure to signal the station to play a liner, and yet another closure to signal the station to play a legal ID.
Cart Number	Refers to the identity of an audio file. A cart number is the file name of the audio file without the file extension. In the time period that tape cartridges ("carts") were used extensively in radio, the conventional method for identifying a particular cartridge and its contents was to place an ID number of some kind on the cartridge label. Typically, the ID number was around 4 characters in length, which was a convenient size to accommodate placing both the ID and a short text description of the audio on the tape cartridge label.
CMINV??.DAT	Refers to an audio inventory data file. The file is formatted to a specification published by Computer Concepts Corporation, Lenexa, KS. The file contains information about .DAF audio files, including the cart number, start and end dates, length and Aux Mark.
Current Voice	Also known as "announcer voice" or "voice number". Refers to a 2-character value representing a pair of digits that might be used in a cart number. Cart numbers that use the Current Voice value contain the "##" cart macro characters as part of the cart number. As an example, at playback time the cart number "ID##" becomes "ID88" if the Current Voice value is "88". The Current Voice value can be set with a task (Set Voice Task) or from the log using the Load Window directive.
Deck, Playback Deck	These terms refers to an audio playback display control. May also be referred to as a ***Transport*** or ***Transport Control***. A deck contains buttons to control audio playback for the selected deck, a status LED, and display fields for remaining play time, cart number and a description of the audio item playing. See the topic on Audio Playback for additional information and screen shots.
Deck Playback Source	Refers to buttons on XStudio decks (channels) 2 and 3 transports. The deck's playback source can be either the Audio Clipboard (the default) or the Log, depending on the state of the button.
Directive	Also known as a Log Directive. Refers to a special type of log (broadcast schedule) record that is used to affect the behavior of

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Term	***Meaning***
	XStudio. See the topic on Log Directives for additional details.
Directive Key Directive Modifier	These terms refer to special characters added to a Log Directive that affect the directive's meaning and behavior. Typically, the special character is placed in the first character position of the directive's description field. For more information, review the Log Directives topic.
EOM	An abbreviation for End-of-Message. Refers to a signal from the host audio engine that playback of a particular audio item (cart) is about to finish. See the synonym Aux Mark for additional details.
Hard Sync	Refers to a method of immediate synchronization of XStudio audio playback to a specific log time. A Hard Sync is initiated with a log directive key and when executed, all playing audio on the primary playback channel is halted followed by immediate playback of the first audio item on the log following the directive.
Hot Button	Refers to a programmable button that when clicked, executes an instant playback of specified audio or executes an XStudio Action.
Input Relay	Also known as a "Relay Input". Refers to a wiring connection on a device, typically an audio switcher, that receives a closure from another external device, typically a satellite receiver. Audio switcher manufacturers may also refer to this connection as a "PIP" (**P**arallel **I**nput **P**ort) or "GPI" (**G**eneral **P**urpose **I**nput). When a mechanical closure is received by the device, the event is communicated to XStudio via serial data sent by the device.
InvMgr	A short-hand reference to the XStudio Inventory Manager.
Log	A broadcast schedule of events, ordered by time. A log normally contains a complete single day's schedule of audio items to be played, along with notes to the end-user and special items called Log Directives that affect the behavior of XStudio.
Log Directive	Also known as a Directive.
Log Splicing	Refers to the technique of updating a current-day XStudio log (program schedule) by retaining log content prior to the current log execution point and merging ("splicing") the new, updated log content starting just after the current log execution point. This mechanism retains already performed content as it was when performed while updating the rest of the log day to reflect the new changes.
Mode	Refers to the operating mode of XStudio. See the topic on Operating Modes for details on the operating modes supported by XStudio along with an explanation of their usage.
MPEG	Refers to ***MPEG-1 Audio Layer II*** (MP2, sometimes incorrectly called Musicam), an audio codec defined by ISO/IEC 11172-3. While MP3 is much more popular for PC and internet applications, MP2

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Term	***Meaning***
	remains a dominant standard for audio broadcasting. MPEG is a "lossy" audio coding standard. MPEG is one of the types of audio files supported for playback in XStudio. (Portions from Wikipedia, the free encyclopedia)
Next-To-Play	Refers to an audio item on the log (broadcast schedule) that is marked as the next item that will be played, either when XStudio is automatically sequencing playback or when the user manually starts playback from the log.
Operating Mode	Also known as Mode.
PCM	Also known as "linear". Refers to an ***uncompressed, lossless*** storage method for audio. Uncompressed audio files are quite large in size but are considered "pure" and high quality, high fidelity audio. When disk storage space is not an issue and best quality audio is required, PCM storage is often used. PCM is one of the types of audio files supported for playback in XStudio. (Portions from Wikipedia, the free encyclopedia)
Property, Properties	Refers to a single "setting" or a group of "settings" in XStudio. The term is used throughout this documentation to define settings or "states" for XStudio that affect how the software operates.
Relay Input	See Input Relay. The terms are synonymous.
Relay Queue Manager	Refers to XStudio's internal mechanism for rotating carts (audio items) in a Start Play task that uses a Cart Rotation List.
Remote Start	Refers to a method of starting playback of audio on a specific deck in XStudio using an external mechanical device such as the channel-on button on a broadcast console.
Session Properties	Refers to a group of settings that control XStudio behavior and document its state of operation. See the topic on Session Properties for additional information.
Soft Sync	Refers to a method of synchronizing XStudio audio playback to a specific log time in a non-abrupt way. Soft Sync is executed as a part of a log directive containing a Cast-Off directive key. When executed, XEngine skips any unplayed audio items on the log located prior to the directive and sets the Next-To-Play marker as the first audio element following the directive.
Stopset	Refers to a "commercial break". The term has its origins in music formats where the music is considered of primary importance and playback of a set (group) of commercials "stops" the format.
Transport, Transport Control	For purposes of XStudio documentation, a transport control is synonymous with Deck or Playback Deck.
Voice Number	Synonymous with Current Voice.

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Term	***Meaning***
Wrap Log	Refers to a playback option and XStudio behavior when the end of a currently executing log is encountered and there are no more audio items on the log. Depending on the operating mode and whether or not a valid next-day log exists, XStudio will "wrap around" the log - go back to the first audio item on the current log - and continue playing audio, generally a better alternative than stoppage of audio playback.

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